TENNESSEE DEPARTMENT OF AGRICULTURE
Water Resources Program

October 3, 2011

Ms. Erin O'Brien
TDEC
L&C Annex, 6th Floor
Nashville, Tennessee 37243

Dear Ms. O'Brien:

I am writing to inform you that I have reviewed the application and Comprehensive Nutrient Management Plan (CNMP) for CAFO permit for Mr. Jack Renner in Mohawk, Tennessee (previous NPDES Permit NO. TN0078611).

This letter is to confirm that the TDA has reviewed and approved the CNMP. I have enclosed a copy of the Nutrient Management Plan Requirements form and the signed and dated Notice of Intent (NOI) form, Addendum to Nutrient Management Plan, Closure Plan, CNMP, and stamped Approval Stamp form for your review and final approval.

Sincerely,

Angela L. Warden
CAFO Specialist

: //enclosures

ec:// Mr. John Donaldson, Technical Service Provider

Ellington Agricultural Center
440 Hogan Road
Nashville, TN 37220
Telephone: 615-837-5492 Fax: 615-837-5025

TENNESSEE DEPARTMENT OF AGRICULTURE

Water Resources Program

The following individual has submitted all required elements of an NMP/CNMP as required to obtain a CAFO permit. Their Nutrient Management Plan (or CNMP) has been reviewed and approved by this office.

Name of Owner/Operator: Jack Renner

Operation Name: Jack Renner

Address of Operation: 2905 Fish Hatchery Rd. Mohawk, TN 37810

Phone Number: (423) 586-1437 County: Greene

Date application was initiated:

RECEIVED
JUN 06 2011

Date approval forwarded to TDEC:

OCT 03 2011

NMP/CNMP Approval Date:

THE APPROVAL SHALL NOT BE CONSTRUED AS CREATING A PRESUMPTION OF CORRECT

OCT 03 2011

OPERATION OR AS WARRANTING THAT THE APPROVED FACILITIES WILL REACH THE DESIGNED GOALS

Date approval received by TDEC

RECEIVED
OCT 04 2011
TN Division Of Water Pollution Control

TDA Reviewer's Name: Angela Warden

TDA Reviewer's Signature: A. Warden 10/3/11
Date

Jack D. Bennett Mohawk, TN 9/30/11

Nutrient Management Plan Requirements

Greene Co.

The following 9 items need to be submitted at the time the permit is applied for. Additional record-keeping items as outlined in the CAFO rules are also considered part of the nutrient management plan and must be kept on-site. More information on each item can be found in the CAFO rule (1200-4-5-.14).

☑ 1. **Two maps: (1.)** A map of your farm showing location of any animal barns/houses, compost bins, litter storage bins, manure lagoons/holding ponds, nearby roads, fields to which litter/manure will be applied, and non-application buffer areas around any bodies of water (streams, creeks, rivers, ponds, wells, sinkholes, springs, wetlands, etc.). A hand-drawn map is acceptable and even preferred. **(2.)** A topographic map of the farm (1:24000 scale, showing 1-mile radius from farm) showing property lines.

☑ 2. **Nutrient budget** – this is basically a balance sheet of all manure produced on the farm and all manure spread on the farm or removed from the farm. Application rates for all fields should be based on crop needs, realistic crop yield expectations, and actual manure analyses of nutrient content.

☑ 3. **Soil test results** for phosphorus and potassium for each application field. These must be taken at a minimum of every five years.

☑ 4. Results of **manure analysis** from within the past year. Annual manure testing is a requirement for all CAFOs. These results must be included with initial permit application if the farm is in operation. If the farm that is applying for the permit is new and not yet operating, then manure testing results need to be obtained once operation begins. At that point, the manure test results and revised application rates need to be submitted to TDA. Manure test results in subsequent years need to be kept as part of your record-keeping activities.

☑ 5. Results of the **Phosphorus Index** applied to each field that has a soil test P value of "High" or "Very High". In those situations, this tool will determine whether your application rates will be based on nitrogen or phosphorus.

☑ 6. Statement regarding method of **dead animal disposal**.

☑ 7. **Closure Plan** to be implemented in the event animal production ceases on the site.

These last two items are only required for medium-size CAFOs that manage **liquid manure**.

☑ 8. Documentation of **design of liquid waste handling system**. This should include, but is not limited to: volume for solids accumulation, design treatment volume, total design volume, the approximate number of days of storage capacity, pumping and routing of wastes, and any solid separation process. Ideally, this documentation would consist of the pertinent engineering drawings with accompanying descriptive narrative.

☑ 9. The construction, modification, repair, or installation of any portion of a CAFO liquid waste handling system (such as earthen holding pond, treatment lagoon, pit, sump or other earthen storage/containment structure) after April 13, 2006 must be preceded by a thorough **subsurface investigation**. This investigation will include a detailed soils investigation with special attention to the water table depth and seepage potential.

In addition to the items above, the following form(s) must accompany your application:

☑ ***Notice of Intent* form** must be submitted with all applications from Class II (Medium) CAFOs

OR

☑ **EPA Forms 1 and 2B** must be submitted with all applications from Class I (Large) CAFOs.

☑ **Addendum to Nutrient Management Plan**.

Tennessee Department of Environment and Conservation,
Division of Water Pollution Control
401 Church Street, 6th Floor L & C Annex, Nashville, TN 37243
(615) 532-0625

CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)
STATE OPERATING PERMIT (SOP)
NOTICE OF INTENT (NOI)

Type of permit you are requesting: ☐ SOPCD0000 (designed to discharge) ☐ SOPC00000 (no discharge) ☐ Unknown, please advise

Application type: ☐ New Permit ☒ Permit Reissuance ☐ Permit Modification

If this NOI is submitted for Permit Modification or Reissuance provide the existing permit tracking number: _____

OPERATION IDENTIFICATION

Operation Name:	**Jack D. Renner**	County:	**Greene**
Operation Location/ Physical Address:	**2905 Fish Hatchery Road Mohawk, TN 37810**	Latitude:	**36.136741**
		Longitude:	**-83.135641**

Name and distance to nearest receiving water(s): **Nolichuckey River 5/10 mile**

If any other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers:

Animal Type: ☒ Poultry ☐ Swine ☐ Dairy ☐ Beef ☐ Other _____

Number of Animals: 132,000 (approx)	Number of Barns: 6	Name of Integrator:

Type of Animal Waste Management: (check all that apply)
☒ Dry
☐ Liquid
☐ Liquid, Closed System (i.e. covered tank, under barn pit, etc.)

Attach the NMP ☐ NMP Attached	Attach the closure plan ☐ Closure Plan Attached	Attach a topographic map ☐ Map Attached

PERMITTEE IDENTIFICATION

Official Contact (applicant): **Jack D. Renner**	Title or Position: **Owner / Manager**			
Mailing Address: **2940 Fish Hatchery Road**	City: Mohawk	State: **TN**	Zip: **37810**	☒ Correspondence ☒ Invoice
Phone number(s): **423-586-1437**	E-mail: **rennerfarm@comcast.net**			
Optional Contact: Ron Renner	Title or Position: Co-Manager			
Address: **204 Farm Path Court**	City: Woodstock	State: **GA**	Zip: **30188**	☒ Correspondence ☐ Invoice
Phone number(s): **770-356-0905**	E-mail: **rrenner@na.ko.com**			

APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-4-5-.05)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and title; print or type	Signature	Date
Jack D. Renner Owner	Jack D. Renner	5-2-11

STATE USE ONLY

Received Date	Reviewer	EFO	T & E Aquatic Fauna	Tracking No.
RECEIVED	Impaired Receiving Stream	High Quality Water		NOC Date

Addendum to Nutrient Management Plan:

By approval of this plan, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

1. All clean water (including rainfall) is diverted, as appropriate, from the production area.
2. All animals in confinement are prevented from coming in direct contact with waters of the state.
3. All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
4. All sampling of soil and manure is conducted according to protocols developed by UT Extension.
5. All records outlined in 1200-4-5-.14(16) d-f will be maintained and available on-site.
6. Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
7. Dry-stacks of manure are always kept covered under roof or tarps.
8. An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16) g].

Signature: Jack Renner Date: 9-30-11
Name:

Nutrient Management Plan

The Nutrient Management Plan (NMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This NMP documents the planning decisions and operation and maintenance for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity document for information about day-to-day management activities and recordkeeping. Both this document and the Producer Activity document shall remain in the possession of the producer/landowner.

Farm contact information: Jack Renner
2940 Fish Hatchery Rd
Mohawk, TN

Latitude/Longitude: 36° 8'34.56"N /83° 8'35.48"W

Plan Period: Oct 2011 - Sep 2016

Owner/Operator

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: Jack Renner Date: 9-30-11
Name:

Nutrient Management Plan

Prepared by: John Donaldson
107 Donaldson Ave
Celina Tn 38551
931-261-9967

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Name:

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Signature: _____ Date: _____

Name:

Table of Contents

Section 1. Background and Site Information

1.1. General Description of Operation

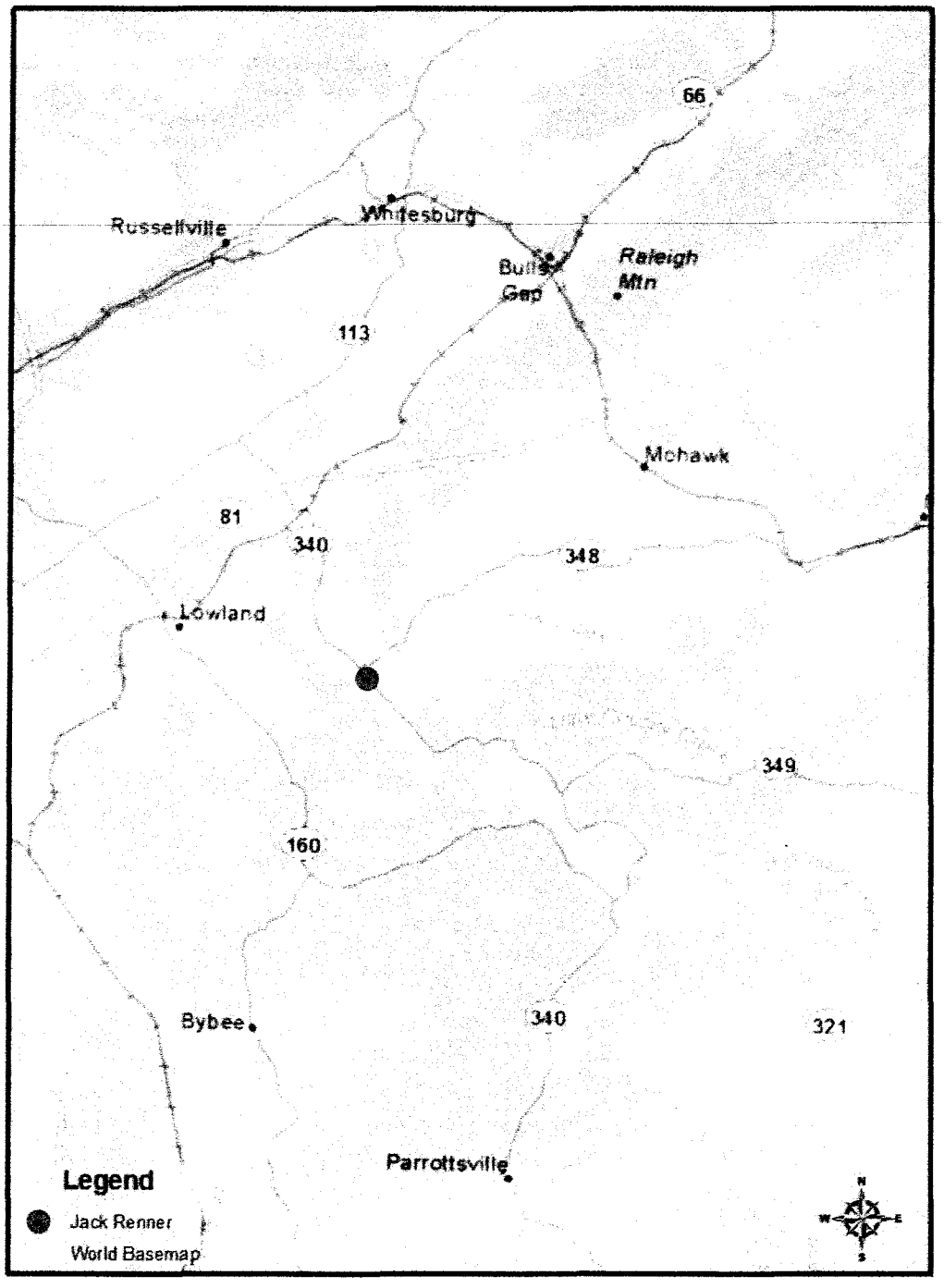
A Nutrient Management Plan (NMP) is a conservation plan that is unique to animal feeding operations. This NMP incorporates conservation practices and management activities which, when combined into a system, will help ensure that both agriculture production goals and natural resources protection goals are achieved. This NMP addresses natural resource concerns dealing with soil erosion, manure, and organic byproducts, and their potential impacts on water quality, which may derive from an animal feeding operation (AFO). This NMP is developed to assist an AFO owner/operator in meeting all applicable management activities and conservation practices which may be required to meet local, tribal, State, or Federal water quality goals, or regulations.

Location Map

County Greene
State Tennessee

Jack Renner Location

Date 9/12/2011



Lat Long 36° 8'34.56"N 83° 8'35.48"W

John Donaldson

0 10,000 20,000 40,000

1.1. General Description of Operation

The Jack Renner Poultry operation is located in southwest Greene county Tennessee. The operation consists of 4 40'x400' houses containing 21000 birds and 4 40'x 500' houses containing 24000 birds. Houses will be decaked between flocks; litter will be stored in the dry stack until land application or export. Litter will be land applied base on this NMP. All excess litter wil be exported to an external operation.

1.2. Sampling, Calibration and Other Statements

Manure sampling frequency
Manure samples will be taken in the fall prior to application.

Soil testing frequency
Soil test will be renewed in the every five years with one sample for each 10 acres contained in a field and identified to match field identification used in this plan.

Equipment calibration method and frequency
Application equipment will be calibrated with documentation annually.

Measures to prevent direct contact of animals with water
Watering facilities are to be installed in all feeding areas as well as fencing to discourage animal contact with state waters..

Manure applications
All manure will be surface applied in spring and fall at 2 year p rates.

Manure applications in this plan are based on lab analysis data. Manure analysis will be required annually after implementation of this plan and will follow UT Ext. SOP for manure sampling. Vegetation establishment is required around the buildings and storage structures to reduce soil erosion, this offsite nutrient and pathogen transport.

All disturbed areas, including slopes of pads, will be planted to permanent vegetation. If construction is during seasons not suited for planting warm or cool season grasses, temporary vegetation will be established until the recommended planting dates. Refer to Application and Maintenance of Conservation Practices and specifically NRCS practice standard 342, Critical Area Treatment, for guidance.

All conservation practices and management activities planned and implemented as part of this CNMP should meet NRCS technical standards. For those elements, for which NRCS does not maintain technical standards, the criteria established by Land Grant Universities, industry, or other technically qualified entities will be met.

Veterinary Waste Management
All veterinary waste will be either disposed of through an approved land fill and sharps containers or by the attending veterinarian.

Revision Trigger
This nutrient management plan shall be reviewed when the results of soil tests are received to insure manure application rates are appropriate. This plan must be re-certified at least every five year. Modifications of the NMP will require re-certification whenever there are substantial changes made to the animal or crop operations. Substantial changes are defined as a change in crop sequence that would not allow allocation of the nutrients using Manure Management Planner (MMP) or equivalent method, change in manure application area size greater than 15% or change in livestock numbers by greater than 10%.

Section 2. Manure and Wastewater Handling and Storage

This element addresses the components and activities, existing and planned, associated with the production facility, feedlot, manure and wastewater storage, treatment structures and areas, and any area used to facilitate transfer of manure and wastewater.

2.1. Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
House 1	In-house litter storage	200 Tons	140 Tons	521
House 2	In-house litter storage	200 Tons	140 Tons	521
House 3	In-house litter storage	200 Tons	140 Tons	521
House 4	In-house litter storage	200 Tons	140 Tons	521
House 5	In-house litter storage	250 Tons	162 Tons	563
House 6	In-house litter storage	250 Tons	162 Tons	563
Dry Stack	Poultry manure dry stack	300 Tons	0 Tons	180

2.2. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
House 1	Broiler	21,000	3.2	Jan Early - Dec Late	100	House 1
House 2	Broiler	21,000	3.2	Jan Early - Dec Late	100	House 2
House 3	Broiler	21,000	3.2	Jan Early - Dec Late	100	House 3
House 4	Broiler	21,000	3.2	Jan Early - Dec Late	100	House 4
House 5	Broiler	24,000	3.2	Jan Early - Dec Late	100	House 5
House 6	Broiler	24,000	3.2	Jan Early - Dec Late	100	House 6

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.
(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

2.3. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Management of Dead Animals

The following table describes how you plan to manage normal animal mortality in a manner that protects surface and ground water quality.

COMPOSTING-- This operation will use composting as the primary mortality disposal method. All mortalities will be collected daily and composted.
For proper composting, correct proportions of carbon, nitrogen, moisture, and oxygen need to be present in the mix. Common carbon sources are sawdust or wheat straw. It is desirable because of its bulking ability, which allows entry of oxygen. Other carbon sources that could be used are peanut hulls, cottonseed hulls, sawdust, leaves, etc. If lab testing of the litter or experience indicates that the carbon/nitrogen ratio is adequate (20 - 35:1 ratio), then litter alone should be sufficient for composting mortality as long as desirable bulking ability is achieved and moisture is properly managed. Moisture management is critical and must be maintained between 40 and 55 percent (40% -does not leave your hand moist when squeezed, 55% - if more than two drops drip from your hand the material is too moist).

Recipe for composting broiler mortality

INGREDIENT	VOLUME	WEIGHTS
Straw	1.0	0.10
Carcasses	1.0	1.0
Litter	1.5	1.2
Water	0.5	0.75

Compost layering procedure

a. The first layer is one foot of litter.
b. A 4-6 inch layer of carbon amendment (sawdust is preferred) is added according to the recipe
c. A layer of carcasses is added. Carcasses shall be laid side-by-side and shall not be stacked on top of one another. Carcasses placed directly on dirt or concrete floors, or against bin walls will not compost properly.
d. Water is added (uniform spray).
e. Carcasses are covered with a 6-inch layer of litter.
f. Next layer of carcasses begun with carbon amendment and above steps repeated.
g. When composter is full, cap the 6-inch layer with four additional inches.

Maintain the moisture content at 40 to 55 percent during the composting process (40% - does not leave your hand moist when squeezed, 55% will allow about one drop of water to be released when squeezed, > 55% - if more than two drops drip from your hand the material is too moist, therefore add sawdust or dry carbon source).

Temperature is the primary indicator to determine if the composting process is working properly. A minimum temperature of 130 ° F shall be reached during the composting process. A temperature of 140 ° F is optimum; however, temperatures may range up to 160 ° F. If the minimum temperature is not reached, the resulting compost shall be incorporated immediately after land application or recomposted by turning and adding moisture as needed. Compost managed at the required temperatures will favor destruction of any pathogens and weed seeds.

Good carcass compost should heat up to the 140° range within a few days. Failure of the compost material to heat up properly normally results from two causes. First, the nitrogen source is inadequate (example wet or leached litter). A pound of commercial fertilizer spread over a carcass layer will usually solve this problem. Secondly, the compost fails when too much water has been added and the compost pile becomes anaerobic. An anaerobic compost bin is characterized by temperatures less than 120°, offensive odors, and black oozing compound flowing from the bottom of the compost bin. In this case a drier bulking / carbon amendment should be added to dry the mix. Then, the material should be remixed and composted.

It is possible, though unlikely, for the temperature to rise above the normal range and create conditions suitable for spontaneous combustion. If temperature rises above 170° F, the material should be removed from the bin and cooled, spread on the ground to a depth not to exceed six inches in an area away from buildings. Water should be added only if flames occur. If temperature falls significantly during the composting period and odors develop, or if material does not reach operating temperature, investigate piles for moisture content, porosity, and thoroughness of mixing.

After this first stage process, the material should be turned into a second bin and allowed to go through a second heat process. For larger birds, especially turkeys, a third turning may be necessary for complete degradation of the birds. Typically, the process can be considered "done" within 21-28 days from the time the compost is filled for broilers. For turkeys, the process usually requires about 60 days. After the heat process, curing period of one to three months is usually required before the material is stable.

Compost may be land applied after the secondary or tertiary composting. If any animal parts are still in the mix, the material must be incorporated. If immediate application is not possible the material should be stored using the same requirements as that of stored litter in the Stacking Shed O&M statement.

Inspect compost structure at least twice annually when the structure is empty. Replace any broken or badly worn parts or hardware. Patch concrete floors and curbs as necessary to assure water tightness. Examine roof structures for structural integrity and leaks. Inspections shall be documented on the attached worksheet.

The primary and secondary composters and the litter storage area should be protected from outside sources of water such as rain or surface runoff.

In order to assure desired operation of the composting facility, daily records should be kept during the first several compost batches. This can be helpful in identifying certain problems that may occur.

2.4. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
Apr 2012	Dry Stack	125 Tons	External Operation	
Oct 2012	Dry Stack	270 Tons	External Operation	
Mar 2013	House 1	96 Tons	External Operation	
Mar 2013	House 2	96 Tons	External Operation	
Mar 2013	House 3	96 Tons	External Operation	
Mar 2013	House 4	96 Tons	External Operation	
Mar 2013	House 5	144 Tons	External Operation	
Mar 2013	House 6	144 Tons	External Operation	
Apr 2013	Dry Stack	235 Tons	External Operation	
Oct 2013	Dry Stack	270 Tons	External Operation	
Apr 2014	Dry Stack	239 Tons	External Operation	
Oct 2014	Dry Stack	270 Tons	External Operation	
Mar 2015	House 1	96 Tons	External Operation	
Mar 2015	House 2	96 Tons	External Operation	
Mar 2015	House 3	96 Tons	External Operation	
Mar 2015	House 4	96 Tons	External Operation	
Mar 2015	House 5	144 Tons	External Operation	
Mar 2015	House 6	144 Tons	External Operation	
Apr 2015	Dry Stack	122 Tons	External Operation	
Oct 2015	Dry Stack	270 Tons	External Operation	
Apr 2016	Dry Stack	239 Tons	External Operation	

2.5. Planned Manure Imports onto the Farm

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location

(None)

2.6. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination
Nov 2011	House 1	15 Tons	Dry Stack
Nov 2011	House 2	15 Tons	Dry Stack
Nov 2011	House 3	15 Tons	Dry Stack
Nov 2011	House 4	15 Tons	Dry Stack
Nov 2011	House 5	15 Tons	Dry Stack
Nov 2011	House 6	15 Tons	Dry Stack
Jan 2012	House 1	15 Tons	Dry Stack
Jan 2012	House 2	15 Tons	Dry Stack
Jan 2012	House 3	15 Tons	Dry Stack
Jan 2012	House 4	15 Tons	Dry Stack

Month-Year	Manure Source	Amount	Manure Destination
Jan 2012	House 5	15 Tons	Dry Stack
Jan 2012	House 6	15 Tons	Dry Stack
Mar 2012	House 1	15 Tons	Dry Stack
Mar 2012	House 2	15 Tons	Dry Stack
Mar 2012	House 3	15 Tons	Dry Stack
Mar 2012	House 4	15 Tons	Dry Stack
Mar 2012	House 5	15 Tons	Dry Stack
Mar 2012	House 6	15 Tons	Dry Stack
May 2012	House 1	15 Tons	Dry Stack
May 2012	House 2	15 Tons	Dry Stack
May 2012	House 3	15 Tons	Dry Stack
May 2012	House 4	15 Tons	Dry Stack
May 2012	House 5	15 Tons	Dry Stack
May 2012	House 6	15 Tons	Dry Stack
Jul 2012	House 1	15 Tons	Dry Stack
Jul 2012	House 2	15 Tons	Dry Stack
Jul 2012	House 3	15 Tons	Dry Stack
Jul 2012	House 4	15 Tons	Dry Stack
Jul 2012	House 5	15 Tons	Dry Stack
Jul 2012	House 6	15 Tons	Dry Stack
Sep 2012	House 1	15 Tons	Dry Stack
Sep 2012	House 2	15 Tons	Dry Stack
Sep 2012	House 3	15 Tons	Dry Stack
Sep 2012	House 4	15 Tons	Dry Stack
Sep 2012	House 5	15 Tons	Dry Stack
Sep 2012	House 6	15 Tons	Dry Stack
Nov 2012	House 1	15 Tons	Dry Stack
Nov 2012	House 2	15 Tons	Dry Stack
Nov 2012	House 3	15 Tons	Dry Stack
Nov 2012	House 4	15 Tons	Dry Stack
Nov 2012	House 5	15 Tons	Dry Stack
Nov 2012	House 6	15 Tons	Dry Stack
Jan 2013	House 1	15 Tons	Dry Stack
Jan 2013	House 2	15 Tons	Dry Stack
Jan 2013	House 3	15 Tons	Dry Stack
Jan 2013	House 4	15 Tons	Dry Stack
Jan 2013	House 5	15 Tons	Dry Stack
Jan 2013	House 6	15 Tons	Dry Stack
Mar 2013	House 1	15 Tons	Dry Stack
Mar 2013	House 2	15 Tons	Dry Stack
Mar 2013	House 3	15 Tons	Dry Stack
Mar 2013	House 4	15 Tons	Dry Stack
Mar 2013	House 5	15 Tons	Dry Stack

Month-Year	Manure Source	Amount	Manure Destination
Mar 2013	House 6	15 Tons	Dry Stack
May 2013	House 1	15 Tons	Dry Stack
May 2013	House 2	15 Tons	Dry Stack
May 2013	House 3	15 Tons	Dry Stack
May 2013	House 4	15 Tons	Dry Stack
May 2013	House 5	15 Tons	Dry Stack
May 2013	House 6	15 Tons	Dry Stack
Jul 2013	House 1	15 Tons	Dry Stack
Jul 2013	House 2	15 Tons	Dry Stack
Jul 2013	House 3	15 Tons	Dry Stack
Jul 2013	House 4	15 Tons	Dry Stack
Jul 2013	House 5	15 Tons	Dry Stack
Jul 2013	House 6	15 Tons	Dry Stack
Sep 2013	House 1	15 Tons	Dry Stack
Sep 2013	House 2	15 Tons	Dry Stack
Sep 2013	House 3	15 Tons	Dry Stack
Sep 2013	House 4	15 Tons	Dry Stack
Sep 2013	House 5	15 Tons	Dry Stack
Sep 2013	House 6	15 Tons	Dry Stack
Nov 2013	House 1	15 Tons	Dry Stack
Nov 2013	House 2	15 Tons	Dry Stack
Nov 2013	House 3	15 Tons	Dry Stack
Nov 2013	House 4	15 Tons	Dry Stack
Nov 2013	House 5	15 Tons	Dry Stack
Nov 2013	House 6	15 Tons	Dry Stack
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Mar 2014	House 4	15 Tons	Dry Stack
Mar 2014	House 5	15 Tons	Dry Stack
Mar 2014	House 6	15 Tons	Dry Stack
May 2014	House 1	15 Tons	Dry Stack
May 2014	House 2	15 Tons	Dry Stack
May 2014	House 3	15 Tons	Dry Stack
May 2014	House 4	15 Tons	Dry Stack
May 2014	House 5	15 Tons	Dry Stack
May 2014	House 6	15 Tons	Dry Stack

Month-Year	Manure Source	Amount	Manure Destination
Jul 2014	House 1	15 Tons	Dry Stack
Jul 2014	House 2	15 Tons	Dry Stack
Jul 2014	House 3	15 Tons	Dry Stack
Jul 2014	House 4	15 Tons	Dry Stack
Jul 2014	House 5	15 Tons	Dry Stack
Jul 2014	House 6	15 Tons	Dry Stack
Sep 2014	House 1	15 Tons	Dry Stack
Sep 2014	House 2	15 Tons	Dry Stack
Sep 2014	House 3	15 Tons	Dry Stack
Sep 2014	House 4	15 Tons	Dry Stack
Sep 2014	House 5	15 Tons	Dry Stack
Sep 2014	House 6	15 Tons	Dry Stack
Nov 2014	House 1	15 Tons	Dry Stack
Nov 2014	House 2	15 Tons	Dry Stack
Nov 2014	House 3	15 Tons	Dry Stack
Nov 2014	House 4	15 Tons	Dry Stack
Nov 2014	House 5	15 Tons	Dry Stack
Nov 2014	House 6	15 Tons	Dry Stack
Jan 2015	House 1	15 Tons	Dry Stack
Jan 2015	House 2	15 Tons	Dry Stack
Jan 2015	House 3	15 Tons	Dry Stack
Jan 2015	House 4	15 Tons	Dry Stack
Jan 2015	House 5	15 Tons	Dry Stack
Jan 2015	House 6	15 Tons	Dry Stack
Mar 2015	House 1	15 Tons	Dry Stack
Mar 2015	House 2	15 Tons	Dry Stack
Mar 2015	House 3	15 Tons	Dry Stack
Mar 2015	House 4	15 Tons	Dry Stack
Mar 2015	House 5	15 Tons	Dry Stack
Mar 2015	House 6	15 Tons	Dry Stack
May 2015	House 1	15 Tons	Dry Stack
May 2015	House 2	15 Tons	Dry Stack
May 2015	House 3	15 Tons	Dry Stack
May 2015	House 4	15 Tons	Dry Stack
May 2015	House 5	15 Tons	Dry Stack
May 2015	House 6	15 Tons	Dry Stack
Jul 2015	House 1	15 Tons	Dry Stack
Jul 2015	House 2	15 Tons	Dry Stack
Jul 2015	House 3	15 Tons	Dry Stack
Jul 2015	House 4	15 Tons	Dry Stack
Jul 2015	House 5	15 Tons	Dry Stack
Jul 2015	House 6	15 Tons	Dry Stack
Sep 2015	House 1	15 Tons	Dry Stack

Month-Year	Manure Source	Amount	Manure Destination
Sep 2015	House 2	15 Tons	Dry Stack
Sep 2015	House 3	15 Tons	Dry Stack
Sep 2015	House 4	15 Tons	Dry Stack
Sep 2015	House 5	15 Tons	Dry Stack
Sep 2015	House 6	15 Tons	Dry Stack
Nov 2015	House 1	15 Tons	Dry Stack
Nov 2015	House 2	15 Tons	Dry Stack
Nov 2015	House 3	15 Tons	Dry Stack
Nov 2015	House 4	15 Tons	Dry Stack
Nov 2015	House 5	15 Tons	Dry Stack
Nov 2015	House 6	15 Tons	Dry Stack
Jan 2016	House 1	15 Tons	Dry Stack
Jan 2016	House 2	15 Tons	Dry Stack
Jan 2016	House 3	15 Tons	Dry Stack
Jan 2016	House 4	15 Tons	Dry Stack
Jan 2016	House 5	15 Tons	Dry Stack
Jan 2016	House 6	15 Tons	Dry Stack
Mar 2016	House 1	15 Tons	Dry Stack
Mar 2016	House 2	15 Tons	Dry Stack
Mar 2016	House 3	15 Tons	Dry Stack
Mar 2016	House 4	15 Tons	Dry Stack
Mar 2016	House 5	15 Tons	Dry Stack
Mar 2016	House 6	15 Tons	Dry Stack
May 2016	House 1	15 Tons	Dry Stack
May 2016	House 2	15 Tons	Dry Stack
May 2016	House 3	15 Tons	Dry Stack
May 2016	House 4	15 Tons	Dry Stack
May 2016	House 5	15 Tons	Dry Stack
May 2016	House 6	15 Tons	Dry Stack
Jul 2016	House 1	15 Tons	Dry Stack
Jul 2016	House 2	15 Tons	Dry Stack
Jul 2016	House 3	15 Tons	Dry Stack
Jul 2016	House 4	15 Tons	Dry Stack
Jul 2016	House 5	15 Tons	Dry Stack
Jul 2016	House 6	15 Tons	Dry Stack
Sep 2016	House 1	15 Tons	Dry Stack
Sep 2016	House 2	15 Tons	Dry Stack
Sep 2016	House 3	15 Tons	Dry Stack
Sep 2016	House 4	15 Tons	Dry Stack
Sep 2016	House 5	15 Tons	Dry Stack
Sep 2016	House 6	15 Tons	Dry Stack

Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

Emergency Contacts

Department / Agency	Phone Number
Fire	911
Rescue services	911
State veterinarian	615-781-5310
Sheriff or local police	911

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
Backhoe	On Site	

Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number
EPA Emergency Spill Hotline	1-888-891-8332
County Health Department	
Other State Emergency Agency	931-823-1465

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

3.2. Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.

3.3. Catastrophic Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Handling

The following table describes how you plan to manage catastrophic loss of animals in a manner that protects surface and ground water quality. You must follow all national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health.

BURIAL-- Burial will be used to dispose of catastrophic mortalities. Contact the state veterinarian's office and the local TDEC office.
Burial will be used to dispose of catastrophic mortalities.
Dig a large pit or trench as located on the plan map. Insert dead animals daily, and cover them with one to two feet of soil. The pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface. The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients.
Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater. The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit.
Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. Carcasses must be covered daily as to reduce vectors in and around the trench or pit.
When the burial pit is full, the site will be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Also, the area will be grassed as to prevent erosion. The burial area will be monitored so that these conditions remain after settling of decomposing carcasses and capping material.
Contact the state veterinarian's office and the local TDEC office.

Important! In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name APHIS
Contact name Charlie Hatcher
Phone number 615-781-5310

3.4. Chemical Handling

If checked, the indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

	This is not a regulatory-agency permitted facility. This section does not apply.

	Measure
XX	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
XX	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
XX	Chemical storage areas are covered to prevent chemical contact with rain or snow.
XX	Emergency procedures and equipment are in place to contain and clean up chemical spills.
	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

Section 4. Soil and Risk Assessment Analysis

4.1. Soil Information

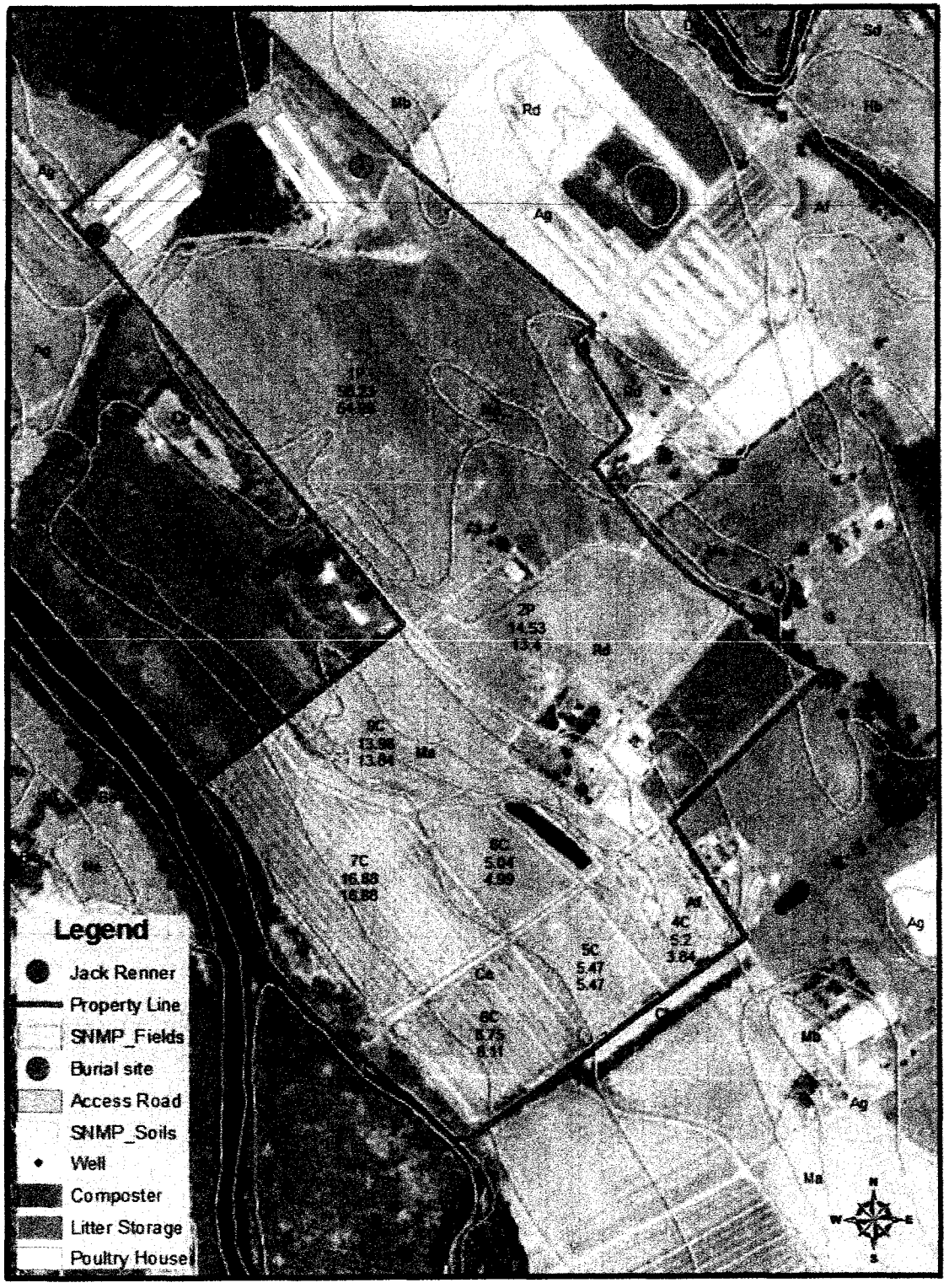
Field	Map Unit	Soil Component Name	Surface Texture	Slope Range (%)	OM Range (%)	Bedrock Depth (in.)
1P	Rd	Roanoke	L	0-2%	0.5-2%	
2P	Rd	Roanoke	L	0-2%	0.5-2%	
3H	Rd	Roanoke	L	0-2%	0.5-2%	
5C	Cb	Chewacla	SIL	0-1%	1-4%	
4C	Af	Altavista	L	5-12%	0.5-3%	
6C	Ce	Congaree	L	0-3%	1-4%	
7C	Ce	Congaree	L	0-3%	1-4%	
8C	Cb	Chewacla	SIL	0-1%	1-4%	
9C	Ag	Altavista	L	1-5%	0.5-3%	

County Greene

State Tennessee

Jack Renner Soils

Date 9/12/2011



Lat Long 36° 8'34.56"N 83° 8'35.48"W

John Donaldson

0 460 920 1,840

4.2. Predicted Soil Erosion

Field	Predominant Soil Type	Slope (%)	Wind (Ton/Ac/Yr)	Irrigation (Ton/Ac/Yr)	Gully (Ton/Ac/Yr)	Ephemeral (Ton/Ac/Yr)	Plan Avg. Soil Loss (Ton/Ac/Yr)
1P	Rd (Roanoke L)	1.0					0.7
2P	Rd (Roanoke L)	1.0					0.7
3H	Rd (Roanoke L)	1.0					0.2
5C	Cb (Chewacla SIL)	0.5					0.2
4C	Af (Altavista L)	8.5					1.3
6C	Ce (Congaree L)	1.5					0.6
7C	Ce (Congaree L)	1.5					0.6
8C	Cb (Chewacla SIL)	0.5					0.2
9C	Ag (Altavista L)	3.0					0.5

Field	Crop Year	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Soil Loss (Ton/Ac)	Primary Crop
1P	2012	11/21/2011	11/20/2012	0.6	Fescue pasture maint
	2013	11/21/2012	11/20/2013	0.7	Fescue pasture maint
	2014	11/21/2013	11/20/2014	0.7	Fescue pasture maint
	2015	11/21/2014	11/20/2015	0.6	Fescue pasture maint
	2016	11/21/2015	11/20/2016	0.7	Fescue pasture maint
2P	2012	11/21/2011	11/20/2012	0.6	Fescue pasture maint
	2013	11/21/2012	11/20/2013	0.7	Fescue pasture maint
	2014	11/21/2013	11/20/2014	0.7	Fescue pasture maint
	2015	11/21/2014	11/20/2015	0.6	Fescue pasture maint
	2016	11/21/2015	11/20/2016	0.7	Fescue pasture maint
3H	2012	10/2/2011	10/1/2012	0.2	Fescue hay maint
	2013	10/2/2012	10/1/2013	0.2	Fescue hay maint
	2014	10/2/2013	10/1/2014	0.2	Fescue hay maint
	2015	10/2/2014	10/1/2015	0.2	Fescue hay maint
	2016	10/2/2015	10/1/2016	0.2	Fescue hay maint
5C	2012	10/16/2011	12/1/2012	0.1	Soybean
	2013	12/2/2012	10/15/2013	0.2	Corn grain

Field	Crop Year	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Soil Loss (Ton/Ac)	Primary Crop
	2014	10/16/2013	12/1/2014	0.1	Soybean
	2015	12/2/2014	10/15/2015	0.2	Corn grain
	2016	10/16/2015	12/1/2016	0.1	Soybean
4C	2012	10/16/2011	12/1/2012	1.0	Soybean
	2013	12/2/2012	10/15/2013	1.9	Corn grain
	2014	10/16/2013	12/1/2014	1.0	Soybean
	2015	12/2/2014	10/15/2015	1.9	Corn grain
	2016	10/16/2015	12/1/2016	1.0	Soybean
6C	2012	12/2/2011	10/15/2012	0.7	Corn grain
	2013	10/16/2012	12/1/2013	0.4	Soybean
	2014	12/2/2013	10/15/2014	0.7	Corn grain
	2015	10/16/2014	12/1/2015	0.4	Soybean
	2016	12/2/2015	10/15/2016	0.7	Corn grain
7C	2012	12/2/2011	10/15/2012	0.7	Corn grain
	2013	10/16/2012	12/1/2013	0.4	Soybean
	2014	12/2/2013	10/15/2014	0.7	Corn grain
	2015	10/16/2014	12/1/2015	0.4	Soybean
	2016	12/2/2015	10/15/2016	0.7	Corn grain
8C	2012	10/16/2011	12/1/2012	0.1	Soybean
	2013	12/2/2012	10/15/2013	0.2	Corn grain
	2014	10/16/2013	12/1/2014	0.1	Soybean
	2015	12/2/2014	10/15/2015	0.2	Corn grain
	2016	10/16/2015	12/1/2016	0.1	Soybean
9C	2012	10/16/2011	12/1/2012	0.4	Soybean
	2013	12/2/2012	10/15/2013	0.7	Corn grain
	2014	10/16/2013	12/1/2014	0.4	Soybean
	2015	12/2/2014	10/15/2015	0.7	Corn grain
	2016	10/16/2015	12/1/2016	0.4	Soybean

4.3. Nitrogen and Phosphorus Risk Analysis

Risk Assessment for Potential Phosphorous Transport from Fields

The Phosphorus Index is a field-specific assessment tool used to provide a relative value of the field for potential phosphorus transport from the fields. Based on the soil test phosphorus level and the P Index value, nutrients should be land applied on a nitrogen-based, with an estimated 2P removal in harvested biomass, or P removal, or no P application. Any phosphorus application option, including a single application (banking), shall not exceed the recommended nitrogen application rate during the year of application, or not exceed the estimated nitrogen removal n harvested biomass.

Tennessee Phosphorus Index

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
1P	2012	12	35	96	420	Very High
1P	2013	12	8	96	96	Low
1P	2014	12	8	96	96	Low
1P	2015	12	35	96	420	Very High
1P	2016	12	8	96	96	Low
2P	2012	12	36	96	432	Very High
2P	2013	12	8	96	96	Low
2P	2014	12	8	96	96	Low
2P	2015	12	36	96	432	Very High
2P	2016	12	8	96	96	Low
3H	2012	12	36	96	432	Very High
3H	2013	12	8	96	96	Low
3H	2014	12	8	96	96	Low
3H	2015	12	36	96	432	Very High
3H	2016	12	8	96	96	Low
5C	2012	15	8	120	120	Medium
5C	2013	15	32	120	480	Very High
5C	2014	15	8	120	120	Medium
5C	2015	15	32	120	480	Very High
5C	2016	15	8	120	120	Medium
4C	2012	15	4	60	60	Low

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
4C	2013	15	29	60	435	Very High
4C	2014	15	4	60	60	Low
4C	2015	15	29	60	435	Very High
4C	2016	15	4	60	60	Low
6C	2012	6	28	24	168	Medium
6C	2013	6	4	24	24	Low
6C	2014	6	28	24	168	Medium
6C	2015	6	4	24	24	Low
6C	2016	6	28	24	168	Medium
7C	2012	6	28	24	168	Medium
7C	2013	6	4	24	24	Low
7C	2014	6	28	24	168	Medium
7C	2015	6	4	24	24	Low
7C	2016	6	28	24	168	Medium
8C	2012	8	4	32	32	Low
8C	2013	8	29	32	232	High
8C	2014	8	4	32	32	Low
8C	2015	8	28	32	224	High
8C	2016	8	4	32	32	Low
9C	2012	8	4	32	32	Low
9C	2013	8	28	32	224	High
9C	2014	8	4	32	32	Low
9C	2015	8	28	32	224	High
9C	2016	8	4	32	32	Low

5.4. Additional Field Data Required by Risk Assessment Procedure

Field	Distance to Water (Feet)	Slope Length (Feet)	Buffer Width (Feet)	Tillage/Cover Type
1P	35	200	35	Pasture/Hay
2P	35	200	35	Pasture/Hay
3H	35	200	35	Pasture/Hay
5C	100	200	None	No-till w/ heavy residues
4C	140	200	None	No-till w/ heavy residues
6C	35	200	35	No-till w/ heavy residues
7C	140	200	140	No-till w/ heavy residues
8C	35	200	35	No-till w/ heavy residues
9C	35	200	35	No-till w/ heavy residues

Section 5. Nutrient Management

The goal of this section is to develop a nutrient budget for nitrogen, phosphorus, and potassium that includes all nutrient sources. From this nutrient budget, projections will be made concerning the sustainability of the plan for the entire crop sequence. In most cases, the nutrient budget is accurate for the first year only. If nutrients from sources not included in this plan are used in the first year, the nutrient budget will be revised to account for those inputs. In subsequent years considered in this plan, a nutrient budget will be developed using current soil analysis data; current manure analysis data; the actual crops to be used and their projected yields and nutrient needs and will account for nutrients from all sources. Guidance in developing a nutrient budget may be obtained from your NRCS Field Office or your University of Tennessee Cooperative Extension Service Agent. Land application procedures must be planned and implemented in a way that minimizes potential adverse impacts to the environment and public health.

If land is included in the future for application that is not under the ownership/control of the producer, appropriate agreements will be obtained.

5.1. Field Information

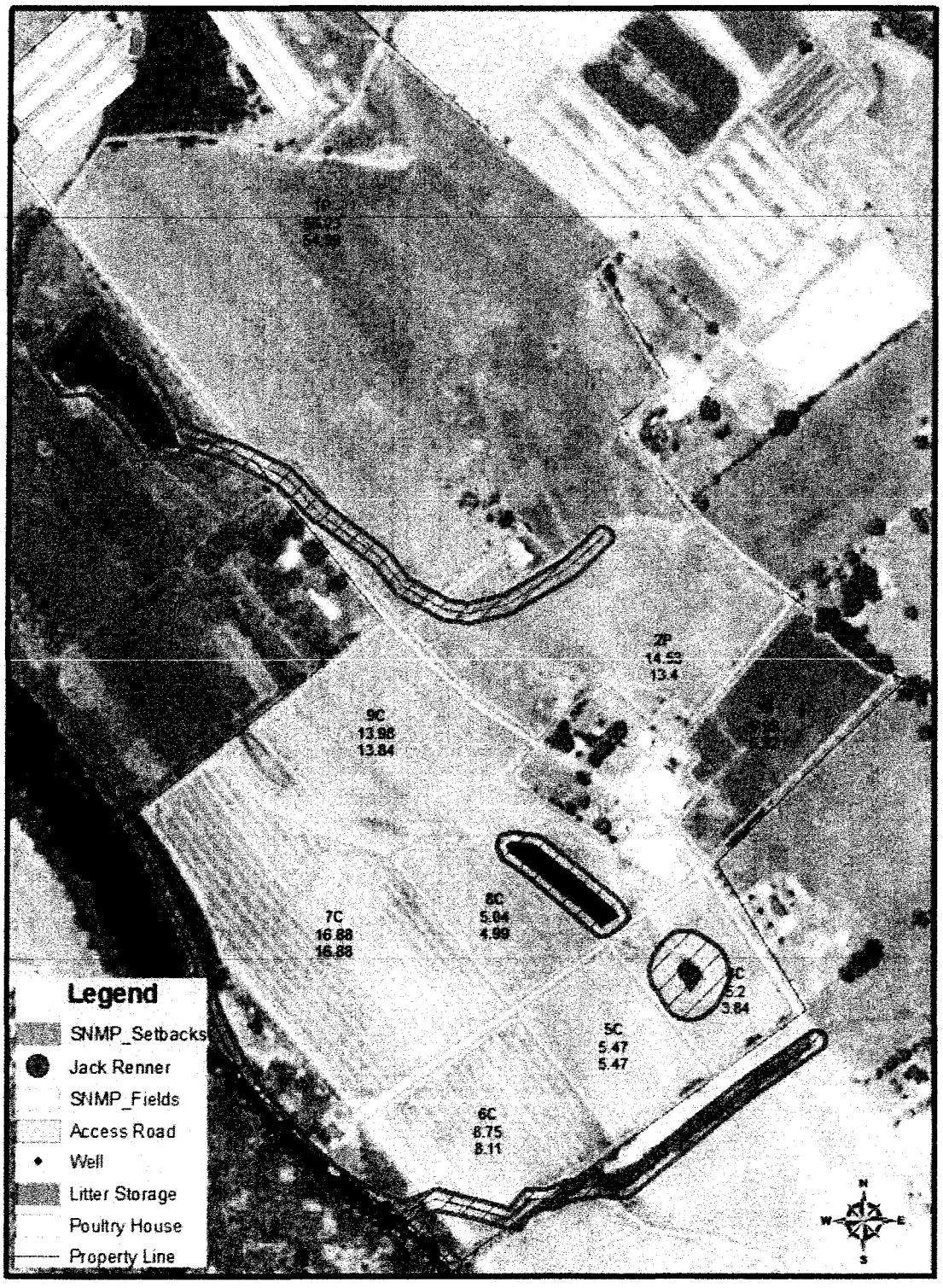
Field ID	Sub-field ID	Total Acres	Spread-able Acres	County	Predominant Soil Type	Slope (%)	Watershed Code	FSA Farm	FSA Tract	FSA Field
1P		56.2	55.0	Greene	Rd (Roanoke L)					
2P		14.5	13.4	Greene	Rd (Roanoke L)					
3H		6.9	6.9	Greene	Rd (Roanoke L)					
5C		5.5	5.5	Greene	Cb (Chewacla SIL)					
4C		5.2	3.8	Greene	Af (Altavista L)					
6C		8.8	8.1	Greene	Ce (Congaree L)					
7C		16.9	16.9	Greene	Ce (Congaree L)					
8C		5.0	5.0	Greene	Cb (Chewacla SIL)					
9C		14.0	13.8	Greene	Ag (Altavista L)					

County: Greene

State: Tennessee

Jack Renner Land App

Date: 9/12/2011



Lat Long: 36° 8'34.56"N 83° 8'35.48"W

John Donaldson

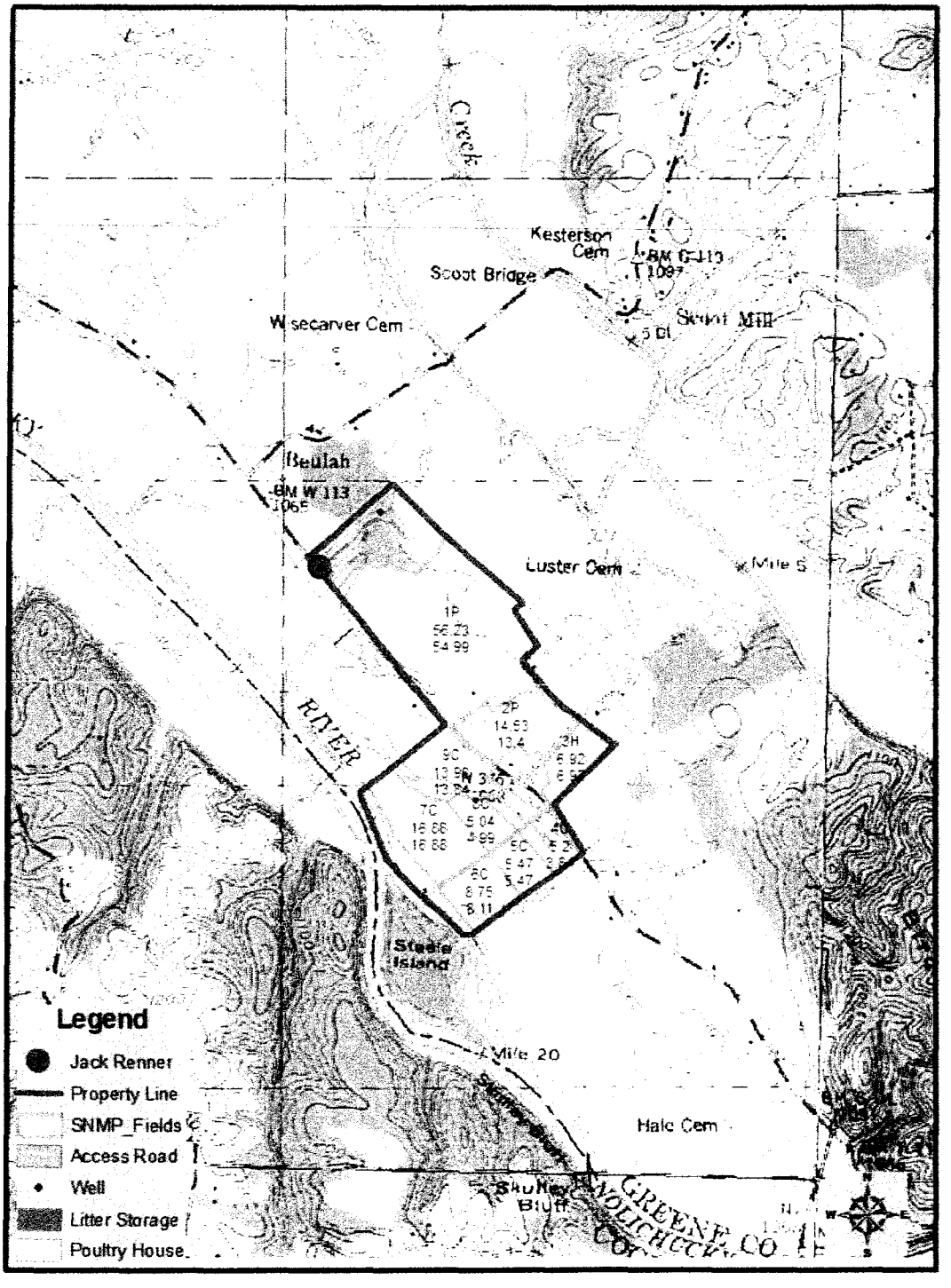
0 320 640 1,280 Feet

County Greene

State Tennessee

Jack Renner Topo

Date 9/12/2011



Lat Long 36° 8 34.56"N 83° 8 35.48"W

John Donaldson

0 1000 2000 4000 Feet

5.2. Manure Application Setback Distances

Setback Requirements: Class I CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, no permanent or insufficient vegetated setback	100
Streams	Applied upgradient, permanent vegetated setback >=35 feet	35
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Open tile line inlet structures	Applied upgradient, no permanent or insufficient vegetated setback	100
Open tile line inlet structures	Applied upgradient, permanent vegetated setback >=35 feet	35
Sinkholes	Applied upgradient, no permanent or insufficient vegetated setback	100
Sinkholes	Applied upgradient, permanent vegetated setback >=35 feet	35
Agricultural well heads	Applied upgradient, no permanent or insufficient vegetated setback	100
Agricultural well heads	Applied upgradient, permanent vegetated setback >=35 feet	35
Other conduits to surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Other conduits to surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Potable well, public or private	Application down-gradient of feature	150
Potable well, public or private	Application upgradient of feature	300

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: Class II CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, permanent vegetated setback >=35 feet	35
Streams	Applied upgradient, no permanent or insufficient vegetated setback	100
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Open tile line inlet structures	Applied upgradient, permanent vegetated setback >=35 feet	35

Feature	Setback Criteria	Setback Distance (Feet)
Open tile line inlet structures	Applied upgradient, no permanent or insufficient vegetated setback	100
Sinkholes	Applied upgradient, permanent vegetated setback >=35 feet	35
Sinkholes	Applied upgradient, no permanent or insufficient vegetated setback	100
Agricultural well heads	Applied upgradient, permanent vegetated setback >=35 feet	35
Agricultural well heads	Applied upgradient, no permanent or insufficient vegetated setback	100
Other conduits to surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Other conduits to surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Potable well, public or private	Application upgradient of feature	300
Potable well, public or private	Application down-gradient of feature	150

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

5.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/ 100g)
1P	2011	2.1	Mehlich-3 ICP	408	550	366	2,586	lbs/a	6.9	7.9	9.1
2P	2011	2.6	Mehlich-3 ICP	568	726	466	3,532	lbs/a	7.2	8.0	11.7
3H	2011	2.6	Mehlich-3 ICP	544	338	410	2,940	lbs/a	6.8	7.9	10.0
5C	2011	2.8	Mehlich-3 ICP	534	618	482	2,508	lbs/a	6.5	7.9	9.6
4C	2011	1.9	Mehlich-3 ICP	124	140	446	2,754	lbs/a	7.3	7.7	8.9
6C	2011	2.1	Mehlich-3 ICP	80	54	380	2,624	lbs/a	7.2	8.0	8.2
7C	2011	1.8	Mehlich-3 ICP	99	42	342	2,415	lbs/a	7.0	8.0	7.8
8C	2011	1.8	Mehlich-3 ICP	76	58	310	1,870	lbs/a	7.1	7.9	6.0
9C	2011	1.8	Mehlich-3 ICP	102	366	412	1,816	lbs/a	6.5	7.9	7.5

Field	Soil Test Notes
1P	A&L 1,2,3,4,5
2P	A&L 6 & 7
3H	A & L 8
5C	A & L 9
4C	A & L 10
6C	A & L 11
7C	A & L 12 & 13
8C	A & L 14
9C	A & L 15

5.4. Manure Nutrient Analysis

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
House 1		67.8	9.8	115.0	68.2	115.0	68.2	Lb/Ton	A & L 85946
House 2		67.8	9.8	115.0	68.2	115.0	68.2	Lb/Ton	A & L 85946
House 3		67.8	9.8	115.0	68.2	115.0	68.2	Lb/Ton	A & L 85946
House 4		67.8	9.8	115.0	68.2	115.0	68.2	Lb/Ton	A & L 85946
House 5		67.8	9.8	115.0	68.2	115.0	68.2	Lb/Ton	A & L 85946
House 6		67.8	9.8	115.0	68.2	115.0	68.2	Lb/Ton	A & L 85946
Dry Stack		67.8	9.8	115.0	68.2	115.0	68.2	Lb/Ton	A & L 85946

(1) Entered analysis may be the average of several individual analyses.
(2) Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm).

5.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
1P	2012	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
1P	2013	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
1P	2014	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
1P	2015	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
1P	2016	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
2P	2012	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
2P	2013	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
2P	2014	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
2P	2015	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
2P	2016	Fescue pasture maint	3.0 Ton	120	0	0	114	54	156	
3H	2012	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
3H	2013	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
3H	2014	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
3H	2015	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
3H	2016	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
5C	2012	Small grain*	80.0 Bu	75	0	0	104	40	28	
5C	2012	Soybean	40.0 Bu	0	0	0	160	32	56	
5C	2013	Corn grain	125.0 Bu	100	0	0	94	55	36	
5C	2014	Small grain*	80.0 Bu	90	0	0	104	40	28	
5C	2014	Soybean	40.0 Bu	0	0	0	160	32	56	
5C	2015	Corn grain	125.0 Bu	100	0	0	94	55	36	
5C	2016	Small grain*	80.0 Bu	90	0	0	104	40	28	
5C	2016	Soybean	40.0 Bu	0	0	0	160	32	56	
4C	2012	Small grain*	80.0 Bu	75	0	20	104	40	28	
4C	2012	Soybean	40.0 Bu	0	0	40	160	32	56	
4C	2013	Corn grain	125.0 Bu	100	0	50	94	55	36	
4C	2014	Small grain*	80.0 Bu	90	0	20	104	40	28	
4C	2014	Soybean	40.0 Bu	0	0	40	160	32	56	
4C	2015	Corn grain	125.0 Bu	100	0	50	94	55	36	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
4C	2016	Small grain*	80.0 Bu	90	0	20	104	40	28	
4C	2016	Soybean	40.0 Bu	0	0	40	160	32	56	
6C	2012	Corn grain	125.0 Bu	100	0	100	94	55	36	
6C	2013	Small grain*	80.0 Bu	90	0	40	104	40	28	
6C	2013	Soybean	40.0 Bu	0	0	80	160	32	56	
6C	2014	Corn grain	125.0 Bu	100	0	100	94	55	36	
6C	2015	Small grain*	80.0 Bu	90	0	40	104	40	28	
6C	2015	Soybean	40.0 Bu	0	0	80	160	32	56	
6C	2016	Corn grain	125.0 Bu	100	0	100	94	55	36	
7C	2012	Corn grain	125.0 Bu	100	0	100	94	55	36	
7C	2013	Small grain*	80.0 Bu	90	0	40	104	40	28	
7C	2013	Soybean	40.0 Bu	0	0	80	160	32	56	
7C	2014	Corn grain	125.0 Bu	100	0	100	94	55	36	
7C	2015	Small grain*	80.0 Bu	90	0	40	104	40	28	
7C	2015	Soybean	40.0 Bu	0	0	80	160	32	56	
7C	2016	Corn grain	125.0 Bu	100	0	100	94	55	36	
8C	2012	Small grain*	80.0 Bu	75	0	40	104	40	28	
8C	2012	Soybean	40.0 Bu	0	0	80	160	32	56	
8C	2013	Corn grain	125.0 Bu	100	0	100	94	55	36	
8C	2014	Small grain*	80.0 Bu	90	0	40	104	40	28	
8C	2014	Soybean	40.0 Bu	0	0	80	160	32	56	
8C	2015	Corn grain	125.0 Bu	100	0	100	94	55	36	
8C	2016	Small grain*	80.0 Bu	90	0	40	104	40	28	
8C	2016	Soybean	40.0 Bu	0	0	80	160	32	56	
9C	2012	Small grain*	80.0 Bu	75	0	0	104	40	28	
9C	2012	Soybean	40.0 Bu	0	0	0	160	32	56	
9C	2013	Corn grain	125.0 Bu	100	0	0	94	55	36	
9C	2014	Small grain*	80.0 Bu	90	0	0	104	40	28	
9C	2014	Soybean	40.0 Bu	0	0	0	160	32	56	
9C	2015	Corn grain	125.0 Bu	100	0	0	94	55	36	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
9C	2016	Small grain*	80.0 Bu	90	0	0	104	40	28	
9C	2016	Soybean	40.0 Bu	0	0	0	160	32	56	

* Unharvested cover crop or first crop in double-crop system.
[a] Custom fertilizer recommendation.

All crop removal and fertilizer recommendations data based UT PSS 185

5.6. Manure Application Planning Calendar – October 2011 through September 2012

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2012 Crop (Prev. Primary Crop)	Oct '11	Nov '11	Dec '11	Jan '12	Feb '12	Mar '12	Apr '12	May '12	Jun '12	Jul '12	Aug '12	Sep '12
1P	56.2	55.0	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
2P	14.5	13.4	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
3H	6.9	6.9	Roanoke L (Rd 0-2%)	Fescue hay maint (Fescue hay maint)												
5C	5.5	5.5	Chewacla SIL (Cb 0-1%)	Soybean (Corn grain)												
4C	5.2	3.8	Altavista L (Af 5-12%)	Soybean (Corn grain)												
6C	8.8	8.1	Congaree L (Ce 0-3%)	Corn grain (Soybean)							1.7					
7C	16.9	16.9	Congaree L (Ce 0-3%)	Corn grain (Soybean)							3.4					
8C	5.0	5.0	Chewacla SIL (Cb 0-1%)	Soybean (Corn grain)												
9C	14.0	13.8	Altavista L (Ag 1-5%)	Soybean (Corn grain)												
Total	*133.0*	*128.4*									*24.1*					

No. indicates total loads
"X" indicates other manure apps

Manure Application Planning Calendar – October 2012 through September 2013

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2013 Crop (Prev. Primary Crop)	Oct '12	Nov '12	Dec '12	Jan '13	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13	Aug '13	Sep '13
1P	56.2	55.0	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
2P	14.5	13.4	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
3H	6.9	6.9	Roanoke L (Rd 0-2%)	Fescue hay maint (Fescue hay maint)												
5C	5.5	5.5	Chewacla SIL (Cb 0-1%)	Corn grain (Soybean)							1.1					
4C	5.2	3.8	Altavista L (Af 5-12%)	Corn grain (Soybean)							0.8					
6C	8.8	8.1	Congaree L (Ce 0-3%)	Soybean (Corn grain)												
7C	16.9	16.9	Congaree L (Ce 0-3%)	Soybean (Corn grain)												
8C	5.0	5.0	Chewacla SIL (Cb 0-1%)	Corn grain (Soybean)							1.1					
9C	14.0	13.8	Altavista L (Ag 1-5%)	Corn grain (Soybean)							2.8					
Total	*133.0*	*128.4*									*5.8*					

No. indicates total loads
"X" indicates other manure apps

Manure Application Planning Calendar – October 2013 through September 2014

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2014 Crop (Prev. Primary Crop)	Oct '13	Nov '13	Dec '13	Jan '14	Feb '14	Mar '14	Apr '14	May '14	Jun '14	Jul '14	Aug '14	Sep '14
1P	56.2	55.0	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
2P	14.5	13.4	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
3H	6.9	6.9	Roanoke L (Rd 0-2%)	Fescue hay maint (Fescue hay maint)												
5C	5.5	5.5	Chewacla SIL (Cb 0-1%)	Soybean (Corn grain)												
4C	5.2	3.8	Altavista L (Af 5-12%)	Soybean (Corn grain)												
6C	8.8	8.1	Congaree L (Ce 0-3%)	Corn grain (Soybean)							1.7					
7C	16.9	16.9	Congaree L (Ce 0-3%)	Corn grain (Soybean)							3.4					
8C	5.0	5.0	Chewacla SIL (Cb 0-1%)	Soybean (Corn grain)												
9C	14.0	13.8	Altavista L (Ag 1-5%)	Soybean (Corn grain)												
Total	*133.0*	*128.4*									*5.1*					

No. indicates total loads
"X" indicates other manure apps

Manure Application Planning Calendar – October 2014 through September 2015

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2015 Crop (Prev. Primary Crop)	Oct '14	Nov '14	Dec '14	Jan '15	Feb '15	Mar '15	Apr '15	May '15	Jun '15	Jul '15	Aug '15	Sep '15
1P	56.2	55.0	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
2P	14.5	13.4	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
3H	6.9	6.9	Roanoke L (Rd 0-2%)	Fescue hay maint (Fescue hay maint)												
5C	5.5	5.5	Chewacla SIL (Cb 0-1%)	Corn grain (Soybean)							1.1					
4C	5.2	3.8	Altavista L (Af 5-12%)	Corn grain (Soybean)							0.8					
6C	8.8	8.1	Congaree L (Ce 0-3%)	Soybean (Corn grain)												
7C	16.9	16.9	Congaree L (Ce 0-3%)	Soybean (Corn grain)												
8C	5.0	5.0	Chewacla SIL (Cb 0-1%)	Corn grain (Soybean)							1.0					
9C	14.0	13.8	Altavista L (Ag 1-5%)	Corn grain (Soybean)							2.8					
Total	*133.0*	*128.4*									24.7					

No. indicates total loads
"X" indicates other manure apps

Manure Application Planning Calendar – October 2015 through September 2016

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2016 Crop (Prev. Primary Crop)	Oct '15	Nov '15	Dec '15	Jan '16	Feb '16	Mar '16	Apr '16	May '16	Jun '16	Jul '16	Aug '16	Sep '16
1P	56.2	55.0	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
2P	14.5	13.4	Roanoke L (Rd 0-2%)	Fescue pasture maint (Fescue pasture maint)												
3H	6.9	6.9	Roanoke L (Rd 0-2%)	Fescue hay maint (Fescue hay maint)												
5C	5.5	5.5	Chewacla SIL (Cb 0-1%)	Soybean (Corn grain)												
4C	5.2	3.8	Altavista L (Af 5-12%)	Soybean (Corn grain)												
6C	8.8	8.1	Congaree L (Ce 0-3%)	Corn grain (Soybean)							1.7					
7C	16.9	16.9	Congaree L (Ce 0-3%)	Corn grain (Soybean)							3.4					
8C	5.0	5.0	Chewacla SIL (Cb 0-1%)	Soybean (Corn grain)												
9C	14.0	13.8	Altavista L (Ag 1-5%)	Soybean (Corn grain)												
Total	*133.0*	*128.4*									*5.1*					

No. indicates total loads
"X" indicates other manure apps

5.7. Planned Nutrient Applications (Manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1P	Apr 2012	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	13.8 Lds	82.8 Ton	55.2	51	173	102
1P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs		9,020 Lbs	55.0	69	0	0
1P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		14,245 Lbs	55.0	109	0	0
1P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	276 Lbs		15,180 Lbs	55.0	116	0	0
1P	Apr 2015	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	13.8 Lds	82.8 Ton	55.2	51	173	102
1P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs		9,020 Lbs	55.0	69	0	0
1P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		14,245 Lbs	55.0	109	0	0
2P	Apr 2012	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	3.4 Lds	20.4 Ton	13.6	51	173	102
2P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs		2,157 Lbs	13.4	68	0	0
2P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		3,471 Lbs	13.4	109	0	0
2P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	276 Lbs		3,698 Lbs	13.4	116	0	0
2P	Apr 2015	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	3.4 Lds	20.4 Ton	13.6	51	173	102
2P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs		2,157 Lbs	13.4	68	0	0
2P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		3,471 Lbs	13.4	109	0	0
3H	Apr 2012	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	123 Lbs		849 Lbs	6.9	52	0	0
3H	Apr 2012	Fescue hay maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	1.8 Lds	10.8 Ton	7.2	51	173	102
3H	Apr 2013	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	223 Lbs		1,539 Lbs	6.9	94	0	0
3H	Apr 2014	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	240 Lbs		1,656 Lbs	6.9	101	0	0
3H	Apr 2015	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	123 Lbs		849 Lbs	6.9	52	0	0
3H	Apr 2015	Fescue hay maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	1.8 Lds	10.8 Ton	7.2	51	173	102

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
3H	Apr 2016	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	223 Lbs		1,539 Lbs	6.9	94	0	0
5C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		979 Lbs	5.5	75	0	0
5C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.1 Lds	6.6 Ton	5.5	41	138	82
5C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		770 Lbs	5.5	59	0	0
5C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,056 Lbs	5.5	81	0	0
5C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.1 Lds	6.6 Ton	5.5	41	138	82
5C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		782 Lbs	5.5	56	0	
5C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,056 Lbs	5.5	81	0	0
4C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		676 Lbs	3.8	75	0	0
4C	Mar 2012	Small grain	0-0-60	Surface broadcast	2-yr	100 Lbs		380 Lbs	3.8	0	0	60
4C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	0.8 Lds	4.8 Ton	4.0	41	138	82
4C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	135 Lbs		513 Lbs	3.8	57	0	0
4C	Mar 2014	Small grain	0-0-60	Surface broadcast	2-yr	40 Lbs		152 Lbs	3.8	0	0	24
4C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		730 Lbs	3.8	81	0	0
4C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	0.8 Lds	4.8 Ton	4.0	41	138	82
4C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs		486 Lbs	3.8	54	0	0
4C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		730 Lbs	3.8	81	0	0
4C	Mar 2016	Small grain	0-0-60	Surface broadcast	2-yr	123 Lbs		467 Lbs	3.8	0	0	74
6C	Apr 2012	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.7 Lds	10.2 Ton	8.5	41	138	82
6C	May 2012	Corn grain	42-0-0	Surface broadcast	Supp. N	135 Lbs		1,094 Lbs	8.1	57	0	0
6C	Mar 2013	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,555 Lbs	8.1	81	0	
6C	Mar 2013	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs		1,806 Lbs	8.1	0	0	134
6C	Apr 2014	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.7 Lds	10.2 Ton	8.5	41	138	82
6C	May 2014	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs		1,037 Lbs	8.1	54	0	0
6C	Mar 2015	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,555 Lbs	8.1	81	0	0
6C	Mar 2015	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs		1,806 Lbs	8.1	0	0	134
6C	Apr 2016	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.7 Lds	10.2 Ton	8.5	41	138	82
6C	May 2016	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs		1,037 Lbs	8.1	54	0	0
7C	Apr 2012	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	3.4 Lds	20.4 Ton	17.0	41	138	82
7C	May 2012	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		2,366 Lbs	16.9	59	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
7C	Mar 2013	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		3,887 Lbs	16.9	0	0	138
7C	Mar 2013	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		3,245 Lbs	16.9	81	0	0
7C	Apr 2014	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	3.4 Lds	20.4 Ton	17.0	41	138	82
7C	May 2014	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		2,248 Lbs	16.9	56	0	0
7C	Mar 2015	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		3,887 Lbs	16.9	0	0	138
7C	Mar 2015	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		3,245 Lbs	16.9	81	0	0
7C	Apr 2016	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	3.4 Lds	20.4 Ton	17.0	41	138	82
7C	May 2016	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		2,248 Lbs	16.9	56	0	0
8C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		890 Lbs	5.0	75	0	0
8C	Mar 2012	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		1,150 Lbs	5.0	0	0	138
8C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.1 Lds	6.6 Ton	5.5	41	138	82
8C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		700 Lbs	5.0	59	0	0
8C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		960 Lbs	5.0	81	0	0
8C	Mar 2014	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		1,150 Lbs	5.0	0	0	138
8C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1 Lds	6 Ton	5.0	41	138	82
8C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		665 Lbs	5.0	56	0	0
8C	Mar 2016	Small grain	0-0-60	Surface broadcast	2-yr	366 Lbs		1,830 Lbs	5.0	0	0	220
8C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		960 Lbs	5.0	81	0	0
9C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		2,456 Lbs	13.8	75	0	0
9C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	2.8 Lds	16.8 Ton	14.0	41	138	82
9C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		1,932 Lbs	13.8	59	0	0
9C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		2,650 Lbs	13.8	81	0	0
9C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	2.8 Lds	16.8 Ton	14.0	41	138	82
9C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		1,835 Lbs	13.8	56	0	0
9C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		2,650 Lbs	13.8	81	0	0

Planned Nutrient Applications (Non-manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	121 Lbs	145 Lbs	1.2	51	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs	197 Lbs	1.2	69	0	0
1P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	26 Lbs	31 Lbs	1.2	11	0	0
1P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	259 Lbs	311 Lbs	1.2	109	0	0
1P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	276 Lbs	331 Lbs	1.2	116	0	0
1P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	9 Lbs	11 Lbs	1.2	4	0	0
1P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	121 Lbs	145 Lbs	1.2	51	0	0
1P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs	197 Lbs	1.2	69	0	0
1P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	26 Lbs	31 Lbs	1.2	11	0	0
1P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	259 Lbs	311 Lbs	1.2	109	0	0
2P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	123 Lbs	135 Lbs	1.1	52	0	0
2P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs	177 Lbs	1.1	68	0	0
2P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs	285 Lbs	1.1	109	0	0
2P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	26 Lbs	29 Lbs	1.1	11	0	0
2P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	9 Lbs	10 Lbs	1.1	4	0	0
2P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	276 Lbs	304 Lbs	1.1	116	0	0
2P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	123 Lbs	135 Lbs	1.1	52	0	0
2P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs	177 Lbs	1.1	68	0	0
2P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	26 Lbs	29 Lbs	1.1	11	0	0
2P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	259 Lbs	285 Lbs	1.1	109	0	0
4C	Mar 2012	Small grain	0-0-60	Surface broadcast	2-yr	100 Lbs	140 Lbs	1.4	0	0	60
4C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs	249 Lbs	1.4	75	0	0
4C	May 2013	Corn grain	42-0-0	Surface broadcast	1-yr N	102 Lbs	143 Lbs	1.4	43	0	0
4C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	135 Lbs	189 Lbs	1.4	57	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
4C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	269 Lbs	1.4	81	0	0
4C	Mar 2014	Small grain	0-0-60	Surface broadcast	2-yr	40 Lbs	56 Lbs	1.4	0	0	24
4C	May 2015	Corn grain	42-0-0	Surface broadcast	1-yr N	128 Lbs	179 Lbs	1.4	54	0	0
4C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	109 Lbs	153 Lbs	1.4	46	0	0
4C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	269 Lbs	1.4	81	0	0
4C	Mar 2016	Small grain	0-0-60	Surface broadcast	2-yr	123 Lbs	172 Lbs	1.4	0	0	74
6C	May 2012	Corn grain	42-0-0	Surface broadcast	1-yr N	135 Lbs	94 Lbs	0.7	57	0	0
6C	May 2012	Corn grain	42-0-0	Surface broadcast	Supp. N	102 Lbs	71 Lbs	0.7	43	0	0
6C	Mar 2013	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	134 Lbs	0.7	81	0	0
6C	Mar 2013	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs	156 Lbs	0.7	0	0	134
6C	May 2014	Corn grain	42-0-0	Surface broadcast	1-yr N	109 Lbs	76 Lbs	0.7	46	0	0
6C	May 2014	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs	90 Lbs	0.7	54	0	0
6C	Mar 2015	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs	156 Lbs	0.7	0	0	134
6C	Mar 2015	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	134 Lbs	0.7	81	0	0
6C	May 2016	Corn grain	42-0-0	Surface broadcast	1-yr N	109 Lbs	76 Lbs	0.7	46	0	0
6C	May 2016	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs	90 Lbs	0.7	54	0	0
9C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs	36 Lbs	0.2	75	0	0
9C	May 2013	Corn grain	42-0-0	Surface broadcast	1-yr N	140 Lbs	28 Lbs	0.2	59	0	0
9C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	97 Lbs	19 Lbs	0.2	41	0	0
9C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	38 Lbs	0.2	81	0	0
9C	May 2015	Corn grain	42-0-0	Surface broadcast	1-yr N	104 Lbs	21 Lbs	0.2	44	0	0
9C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs	27 Lbs	0.2	56	0	0
9C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	38 Lbs	0.2	81	0	0

Planned Nutrient Applications (Manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1P	Apr 2012	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	13.8 Lds	82.8 Ton	55.2	51	173	102
1P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs		9,020 Lbs	55.0	69	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		14,245 Lbs	55.0	109	0	0
1P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	276 Lbs		15,180 Lbs	55.0	116	0	0
1P	Apr 2015	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	13.8 Lds	82.8 Ton	55.2	51	173	102
1P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs		9,020 Lbs	55.0	69	0	0
1P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		14,245 Lbs	55.0	109	0	0
2P	Apr 2012	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	3.4 Lds	20.4 Ton	13.6	51	173	102
2P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs		2,157 Lbs	13.4	68	0	0
2P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		3,471 Lbs	13.4	109	0	0
2P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	276 Lbs		3,698 Lbs	13.4	116	0	0
2P	Apr 2015	Fescue pasture maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	3.4 Lds	20.4 Ton	13.6	51	173	102
2P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs		2,157 Lbs	13.4	68	0	0
2P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs		3,471 Lbs	13.4	109	0	0
3H	Apr 2012	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	123 Lbs		849 Lbs	6.9	52	0	0
3H	Apr 2012	Fescue hay maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	1.8 Lds	10.8 Ton	7.2	51	173	102
3H	Apr 2013	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	223 Lbs		1,539 Lbs	6.9	94	0	0
3H	Apr 2014	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	240 Lbs		1,656 Lbs	6.9	101	0	0
3H	Apr 2015	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	123 Lbs		849 Lbs	6.9	52	0	0
3H	Apr 2015	Fescue hay maint	Dry Stack	Spreader, Not incorporated	3-yr P	1.5 Ton	1.8 Lds	10.8 Ton	7.2	51	173	102
3H	Apr 2016	Fescue hay maint	42-0-0	Surface broadcast	1-yr N	223 Lbs		1,539 Lbs	6.9	94	0	0
5C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		979 Lbs	5.5	75	0	0
5C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.1 Lds	6.6 Ton	5.5	41	138	82
5C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		770 Lbs	5.5	59	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
5C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,056 Lbs	5.5	81	0	0
5C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.1 Lds	6.6 Ton	5.5	41	138	82
5C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		732 Lbs	5.5	56	0	0
5C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,056 Lbs	5.5	81	0	0
4C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		676 Lbs	3.8	75	0	0
4C	Mar 2012	Small grain	0-0-60	Surface broadcast	2-yr	100 Lbs		380 Lbs	3.8	0	0	60
4C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	0.8 Lds	4.8 Ton	4.0	41	138	82
4C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	135 Lbs		513 Lbs	3.8	57	0	0
4C	Mar 2014	Small grain	0-0-60	Surface broadcast	2-yr	40 Lbs		152 Lbs	3.8	0	0	24
4C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		730 Lbs	3.8	81	0	0
4C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	0.8 Lds	4.8 Ton	4.0	41	138	82
4C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs		486 Lbs	3.8	54	0	0
4C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		730 Lbs	3.8	81	0	0
4C	Mar 2016	Small grain	0-0-60	Surface broadcast	2-yr	123 Lbs		467 Lbs	3.8	0	0	74
6C	Apr 2012	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.7 Lds	10.2 Ton	8.5	41	138	82
6C	May 2012	Corn grain	42-0-0	Surface broadcast	Supp. N	135 Lbs		1,094 Lbs	8.1	57	0	0
6C	Mar 2013	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,555 Lbs	8.1	81	0	0
6C	Mar 2013	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs		1,806 Lbs	8.1	0	0	134
6C	Apr 2014	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.7 Lds	10.2 Ton	8.5	41	138	82
6C	May 2014	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs		1,037 Lbs	8.1	54	0	0
6C	Mar 2015	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		1,555 Lbs	8.1	81	0	0
6C	Mar 2015	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs		1,806 Lbs	8.1	0	0	134
6C	Apr 2016	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.7 Lds	10.2 Ton	8.5	41	138	82
6C	May 2016	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs		1,037 Lbs	8.1	54	0	0
7C	Apr 2012	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	3.4 Lds	20.4 Ton	17.0	41	138	82
7C	May 2012	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		2,366 Lbs	16.9	59	0	0
7C	Mar 2013	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		3,887 Lbs	16.9	0	0	138
7C	Mar 2013	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		3,245 Lbs	16.9	81	0	0
7C	Apr 2014	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	3.4 Lds	20.4 Ton	17.0	41	138	82
7C	May 2014	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		2,248 Lbs	16.9	56	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
7C	Mar 2015	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		3,887 Lbs	16.9	0	0	138
7C	Mar 2015	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		3,245 Lbs	16.9	81	0	0
7C	Apr 2016	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	3.4 Lds	20.4 Ton	17.0	41	138	82
7C	May 2016	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		2,248 Lbs	16.9	56	0	0
8C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		890 Lbs	5.0	75	0	0
8C	Mar 2012	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		1,150 Lbs	5.0	0	0	138
8C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1.1 Lds	6.6 Ton	5.5	41	138	82
8C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		700 Lbs	5.0	59	0	0
8C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		960 Lbs	5.0	81	0	0
8C	Mar 2014	Small grain	0-0-60	Surface broadcast	2-yr	230 Lbs		1,150 Lbs	5.0	0	0	138
8C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	1 Lds	6 Ton	5.0	41	138	82
8C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		665 Lbs	5.0	56	0	0
8C	Mar 2016	Small grain	0-0-60	Surface broadcast	2-yr	366 Lbs		1,830 Lbs	5.0	0	0	220
8C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		960 Lbs	5.0	81	0	0
9C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs		2,456 Lbs	13.8	75	0	0
9C	Apr 2013	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	2.8 Lds	16.8 Ton	14.0	41	138	82
9C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	140 Lbs		1,932 Lbs	13.8	59	0	0
9C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		2,650 Lbs	13.8	81	0	0
9C	Apr 2015	Corn grain	Dry Stack	Spreader, Not incorporated	2-yr P	1.2 Ton	2.8 Lds	16.8 Ton	14.0	41	138	82
9C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs		1,835 Lbs	13.8	56	0	0
9C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs		2,650 Lbs	13.8	81	0	0

Planned Nutrient Applications (Non-manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	121 Lbs	145 Lbs	1.2	51	0	0
1P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs	197 Lbs	1.2	69	0	0
1P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	26 Lbs	31 Lbs	1.2	11	0	0
1P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	259 Lbs	311 Lbs	1.2	109	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	276 Lbs	331 Lbs	1.2	116	0	0
1P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	9 Lbs	11 Lbs	1.2	4	0	0
1P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	121 Lbs	145 Lbs	1.2	51	0	0
1P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	164 Lbs	197 Lbs	1.2	69	0	0
1P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	26 Lbs	31 Lbs	1.2	11	0	0
1P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	259 Lbs	311 Lbs	1.2	109	0	0
2P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	123 Lbs	135 Lbs	1.1	52	0	0
2P	Apr 2012	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs	177 Lbs	1.1	68	0	0
2P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	259 Lbs	285 Lbs	1.1	109	0	0
2P	Apr 2013	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	26 Lbs	29 Lbs	1.1	11	0	0
2P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	9 Lbs	10 Lbs	1.1	4	0	0
2P	Apr 2014	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	276 Lbs	304 Lbs	1.1	116	0	0
2P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	123 Lbs	135 Lbs	1.1	52	0	0
2P	Apr 2015	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	161 Lbs	177 Lbs	1.1	68	0	0
2P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	1-yr N	26 Lbs	29 Lbs	1.1	11	0	0
2P	Apr 2016	Fescue pasture maint	42-0-0	Surface broadcast	Supp. N	259 Lbs	285 Lbs	1.1	109	0	0
4C	Mar 2012	Small grain	0-0-60	Surface broadcast	2-yr	100 Lbs	140 Lbs	1.4	0	0	60
4C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs	249 Lbs	1.4	75	0	0
4C	May 2013	Corn grain	42-0-0	Surface broadcast	1-yr N	102 Lbs	143 Lbs	1.4	43	0	0
4C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	135 Lbs	189 Lbs	1.4	57	0	0
4C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	269 Lbs	1.4	81	0	0
4C	Mar 2014	Small grain	0-0-60	Surface broadcast	2-yr	40 Lbs	56 Lbs	1.4	0	0	24
4C	May 2015	Corn grain	42-0-0	Surface broadcast	1-yr N	128 Lbs	179 Lbs	1.4	54	0	0
4C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	109 Lbs	153 Lbs	1.4	46	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
4C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	269 Lbs	1.4	81	0	0
4C	Mar 2016	Small grain	0-0-60	Surface broadcast	2-yr	123 Lbs	172 Lbs	1.4	0	0	74
6C	May 2012	Corn grain	42-0-0	Surface broadcast	1-yr N	135 Lbs	94 Lbs	0.7	57	0	0
6C	May 2012	Corn grain	42-0-0	Surface broadcast	Supp. N	102 Lbs	71 Lbs	0.7	43	0	0
6C	Mar 2013	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	134 Lbs	0.7	81	0	0
6C	Mar 2013	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs	156 Lbs	0.7	0	0	134
6C	May 2014	Corn grain	42-0-0	Surface broadcast	1-yr N	109 Lbs	76 Lbs	0.7	46	0	0
6C	May 2014	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs	90 Lbs	0.7	54	0	0
6C	Mar 2015	Small grain	0-0-60	Surface broadcast	2-yr	223 Lbs	156 Lbs	0.7	0	0	134
6C	Mar 2015	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	134 Lbs	0.7	81	0	0
6C	May 2016	Corn grain	42-0-0	Surface broadcast	1-yr N	109 Lbs	76 Lbs	0.7	46	0	0
6C	May 2016	Corn grain	42-0-0	Surface broadcast	Supp. N	128 Lbs	90 Lbs	0.7	54	0	0
9C	Mar 2012	Small grain	42-0-0	Surface broadcast	1-yr N	178 Lbs	36 Lbs	0.2	75	0	0
9C	May 2013	Corn grain	42-0-0	Surface broadcast	1-yr N	140 Lbs	28 Lbs	0.2	59	0	0
9C	May 2013	Corn grain	42-0-0	Surface broadcast	Supp. N	97 Lbs	19 Lbs	0.2	41	0	0
9C	Mar 2014	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	38 Lbs	0.2	81	0	0
9C	May 2015	Corn grain	42-0-0	Surface broadcast	1-yr N	104 Lbs	21 Lbs	0.2	44	0	0
9C	May 2015	Corn grain	42-0-0	Surface broadcast	Supp. N	133 Lbs	27 Lbs	0.2	56	0	0
9C	Mar 2016	Small grain	42-0-0	Surface broadcast	1-yr N	192 Lbs	38 Lbs	0.2	81	0	0

5.8. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2012	1P	55.0	Fescue pasture maint	3	120	0	0	120	174	102	0	174	102	-120	-54
2013	1P	55.0	Fescue pasture maint	3	120	0	0	109	0	0	0†	174	102	66	-156
2014	1P	55.0	Fescue pasture maint	3	120	0	0	116	0	0	0†	174	102	12	-156
2015	1P	55.0	Fescue pasture maint	3	120	0	0	120	174	102	0	348	204	-132	-54
2016	1P	55.0	Fescue pasture maint	3	120	0	0	109	0	0	0†	348	204	-78	-156
Total	**1P**				**600**	**0**	**0**	**574**	**348**	**204**					
2012	2P	13.4	Fescue pasture maint	3	120	0	0	120	176	104	0	176	104	-122	-52
2013	2P	13.4	Fescue pasture maint	3	120	0	0	109	0	0	0†	176	104	68	-156
2014	2P	13.4	Fescue pasture maint	3	120	0	0	116	0	0	0†	176	104	14	-156
2015	2P	13.4	Fescue pasture maint	3	120	0	0	120	176	104	0	352	208	-136	-52
2016	2P	13.4	Fescue pasture maint	3	120	0	0	109	0	0	0†	352	208	82	-156
Total	**2P**				**600**	**0**	**0**	**574**	**352**	**208**					
2012	3H	6.9	Fescue hay maint	3	105	0	0	105	181	106	0	181	106	-127	-50
2013	3H	6.9	Fescue hay maint	3	105	0	0	94	0	0	0†	181	106	73	-156
2014	3H	6.9	Fescue hay maint	3	105	0	0	101	0	0	0†	181	106	19	-156
2015	3H	6.9	Fescue hay maint	3	105	0	0	105	181	106	0	362	212	-146	-50
2016	3H	6.9	Fescue hay maint	3	105	0	0	94	0	0	0†	362	212	92	-156
Total	**3H**				**525**	**0**	**0**	**499**	**362**	**212**					
2012	5C	5.5	Small grain	80	75	0	0								
2012	5C	5.5	Soybean	40	0	0	0	75	0	0	0	0	0	-72	-84
2013	5C	5.5	Corn grain	125	100	0	0	100	138	82	0	138	82	83	46
2014	5C	5.5	Small grain	80	90	0	0							-29	
2014	5C	5.5	Soybean	40	0	0	0	81	0	0	0†	138	82	-81 11	-38
2015	5C	5.5	Corn grain	125	100	0	0	97	138	82	0†	276	164	22 94	46
2016	5C	5.5	Small grain	80	90	0	0							-18	
2016	5C	5.5	Soybean	40	0	0	0	81	0	0	0†	276	164	-73 22	-38
Total	**5C**				**455**	**0**	**0**	**434**	**276**	**164**					
2012	4C	3.8	Small grain	80	75	0	20								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2012	4C	3.8	Soybean	40	0	0	40	75	0	60	0	0	0	-72	-24
2013	4C	3.8	Corn grain	125	100	0	50	100	145	86	0	145	36	90	50
2014	4C	3.8	Small grain	80	90	0	20								
2014	4C	3.8	Soybean	40	0	0	40	81	0	24	0†	145	0	18	-10
2015	4C	3.8	Corn grain	125	100	0	50	97	145	86	0†	290	36	108	50
2016	4C	3.8	Small grain	80	90	0	20								
2016	4C	3.8	Soybean	40	0	0	40	81	0	74	0†	290	50	36	40
Total	**4C**				**455**	**0**	**280**	**434**	**290**	**330**					
2012	6C	8.1	Corn grain	125	100	0	100	100	145	86	0	145	-14	90	50
2013	6C	8.1	Small grain	80	90	0	40								
2013	6C	8.1	Soybean	40	0	0	80	81	0	134	0†	145	14	18	100
2014	6C	8.1	Corn grain	125	100	0	100	97	145	86	0†	290	0	108	150
2015	6C	8.1	Small grain	80	90	0	40								
2015	6C	8.1	Soybean	40	0	0	80	81	0	134	0†	290	14	36	200
2016	6C	8.1	Corn grain	125	100	0	100	97	145	86	0†	435	0	126	250
Total	**6C**				**480**	**0**	**540**	**456**	**435**	**526**					
2012	7C	16.9	Corn grain	125	100	0	100	100	139	82	0	139	-18	84	46
2013	7C	16.9	Small grain	80	90	0	40								
2013	7C	16.9	Soybean	40	0	0	80	81	0	138	0†	139	18	12	100
2014	7C	16.9	Corn grain	125	100	0	100	97	139	82	0†	278	0	96	146
2015	7C	16.9	Small grain	80	90	0	40								
2015	7C	16.9	Soybean	40	0	0	80	81	0	138	0†	278	18	24	200
2016	7C	16.9	Corn grain	125	100	0	100	97	139	82	0†	417	0	108	246
Total	**7C**				**480**	**0**	**540**	**456**	**417**	**522**					
2012	8C	5.0	Small grain	80	75	0	40								
2012	8C	5.0	Soybean	40	0	0	80	75	0	138	0	0	18	-72	54
2013	8C	5.0	Corn grain	125	100	0	100	104	152	90	4	152	8	97	108
2014	8C	5.0	Small grain	80	90	0	40								
2014	8C	5.0	Soybean	40	0	0	80	81	0	138	1†	152	26	25	162
2015	8C	5.0	Corn grain	125	100	0	100	97	138	82	0†	290	8	108	208

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2016	8C	5.0	Small grain	80	90	0	40								
2016	8C	5.0	Soybean	40	0	0	80	81	0	220	0†	290	108	36	344
Total	**8C**				**455**	**0**	**560**	**438**	**290**	**668**					
2012	9C	13.8	Small grain	80	75	0	0								
2012	9C	13.8	Soybean	40	0	0	0	75	0	0	0	0	0	-72	-84
2013	9C	13.8	Corn grain	125	100	0	0	101	140	83	1	140	83	85	47
2014	9C	13.8	Small grain	80	90	0	0								
2014	9C	13.8	Soybean	40	0	0	0	81	0	0	0†	140	83	13	-37
2015	9C	13.8	Corn grain	125	100	0	0	98	140	83	1†	280	166	98	47
2016	9C	13.8	Small grain	80	90	0	0								
2016	9C	13.8	Soybean	40	0	0	0	81	0	0	0†	280	166	26	-37
Total	**9C**				**455**	**0**	**0**	**436**	**280**	**166**					

Field Nutrient Balance (Non-manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2012	1P	1.2	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2013	1P	1.2	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2014	1P	1.2	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2015	1P	1.2	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2016	1P	1.2	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
Total	**1P**				**600**	**0**	**0**	**600**	**0**	**0**					
2012	2P	1.1	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2013	2P	1.1	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2014	2P	1.1	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2015	2P	1.1	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
2016	2P	1.1	Fescue pasture maint	3	120	0	0	120	0	0	0	0	0	-54	-156
Total	**2P**				**600**	**0**	**0**	**600**	**0**	**0**					
2012	4C	1.4	Small grain	80	75	0	20								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2012	4C	1.4	Soybean	40	0	0	40	75	0	60	0	0	0	-72	-24
2013	4C	1.4	Corn grain	125	100	0	50	100	0	0	0	0	-50	-55	-36
2014	4C	1.4	Small grain	80	90	0	20								
2014	4C	1.4	Soybean	40	0	0	40	81	0	24	-9	0	-36	-72	-60
2015	4C	1.4	Corn grain	125	100	0	50	100	0	0	0	0	-50	-55	-36
2016	4C	1.4	Small grain	80	90	0	20								
2016	4C	1.4	Soybean	40	0	0	40	81	0	74	-9	0	14	-72	-10
Total	**4C**				**455**	**0**	**280**	**437**	**0**	**158**					
2012	6C	0.7	Corn grain	125	100	0	100	100	0	0	0	0	-100	-55	-36
2013	6C	0.7	Small grain	80	90	0	40							-95	
2013	6C	0.7	Soybean	40	0	0	80	81	0	134	-9	0	14	-72	50
2014	6C	0.7	Corn grain	125	100	0	100	100	0	0	0	0	-86	-55	14
2015	6C	0.7	Small grain	80	90	0	40								
2015	6C	0.7	Soybean	40	0	0	80	81	0	134	-9	0	14	-72	64
2016	6C	0.7	Corn grain	125	100	0	100	100	0	0	0	0	-86	-55	28
Total	**6C**				**480**	**0**	**540**	**462**	**0**	**268**					
2012	9C	0.2	Small grain	80	75	0	0								
2012	9C	0.2	Soybean	40	0	0	0	75	0	0	0	0	0	-72	-84
2013	9C	0.2	Corn grain	125	100	0	0	100	0	0	0	0	0	-55	-36
2014	9C	0.2	Small grain	80	90	0	0								
2014	9C	0.2	Soybean	40	0	0	0	81	0	0	-9	0	0	-72	-84
2015	9C	0.2	Corn grain	125	100	0	0	100	0	0	0	0	0	-55	-36
2016	9C	0.2	Small grain	80	90	0	0								
2016	9C	0.2	Soybean	40	0	0	0	81	0	0	-9	0	0	-72	-84
Total	**9C**				**455**	**0**	**0**	**437**	**0**	**0**					

[1] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[2] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[3] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P_2O_5 and K_2O, Nutrients Applied *minus* Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

[4] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

[¤] Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

[a] Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

† Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

5.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
House 1	Oct '11 - Sep '12	24	140	0	0	0	0	90	74	Ton
House 2	Oct '11 - Sep '12	24	140	0	0	0	0	90	74	Ton
House 3	Oct '11 - Sep '12	24	140	0	0	0	0	90	74	Ton
House 4	Oct '11 - Sep '12	24	140	0	0	0	0	90	74	Ton
House 5	Oct '11 - Sep '12	36	162	0	0	0	0	90	108	Ton
House 6	Oct '11 - Sep '12	36	162	0	0	0	0	90	108	Ton
Dry Stack	Oct '11 - Sep '12	0	0	0	540	145	125	0	270	Ton
All Sources	**Oct '11 - Sep '12**	**168**	**884**	**0**	**540**	**145**	**125**	**540**	**782**	**Ton**
House 1	Oct '12 - Sep '13	74	140	0	0	0	96	90	28	Ton
House 2	Oct '12 - Sep '13	74	140	0	0	0	96	90	28	Ton
House 3	Oct '12 - Sep '13	74	140	0	0	0	96	90	28	Ton
House 4	Oct '12 - Sep '13	74	140	0	0	0	96	90	28	Ton
House 5	Oct '12 - Sep '13	108	162	0	0	0	144	90	36	Ton
House 6	Oct '12 - Sep '13	108	162	0	0	0	144	90	36	Ton
Dry Stack	Oct '12 - Sep '13	270	0	0	540	35	505	0	270	Ton
All Sources	**Oct '12 - Sep '13**	**782**	**884**	**0**	**540**	**35**	**1,177**	**540**	**454**	**Ton**
House 1	Oct '13 - Sep '14	28	140	0	0	0	0	90	78	Ton
House 2	Oct '13 - Sep '14	28	140	0	0	0	0	90	78	Ton
House 3	Oct '13 - Sep '14	28	140	0	0	0	0	90	78	Ton
House 4	Oct '13 - Sep '14	28	140	0	0	0	0	90	78	Ton
House 5	Oct '13 - Sep '14	36	162	0	0	0	0	90	108	Ton
House 6	Oct '13 - Sep '14	36	162	0	0	0	0	90	108	Ton
Dry Stack	Oct '13 - Sep '14	270	0	0	540	31	509	0	271	Ton
All Sources	**Oct '13 - Sep '14**	**454**	**884**	**0**	**540**	**31**	**509**	**540**	**799**	**Ton**
House 1	Oct '14 - Sep '15	78	140	0	0	0	96	90	32	Ton
House 2	Oct '14 - Sep '15	78	140	0	0	0	96	90	32	Ton
House 3	Oct '14 - Sep '15	78	140	0	0	0	96	90	32	Ton
House 4	Oct '14 - Sep '15	78	140	0	0	0	96	90	32	Ton
House 5	Oct '14 - Sep '15	108	162	0	0	0	144	90	36	Ton
House 6	Oct '14 - Sep '15	108	162	0	0	0	144	90	36	Ton
Dry Stack	Oct '14 - Sep '15	271	0	0	540	148	392	0	270	Ton
All Sources	**Oct '14 - Sep '15**	**799**	**884**	**0**	**540**	**148**	**1,064**	**540**	**470**	**Ton**
House 1	Oct '15 - Sep '16	32	140	0	0	0	0	90	82	Ton
House 2	Oct '15 - Sep '16	32	140	0	0	0	0	90	82	Ton
House 3	Oct '15 - Sep '16	32	140	0	0	0	0	90	82	Ton
House 4	Oct '15 - Sep '16	32	140	0	0	0	0	90	82	Ton

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
House 5	Oct '15 - Sep '16	36	162	0	0	0	0	90	108	Ton
House 6	Oct '15 - Sep '16	36	162	0	0	0	0	90	108	Ton
Dry Stack	Oct '15 - Sep '16	270	0	0	540	31	509	0	271	Ton
All Sources	**Oct '15 - Sep '16**	**470**	**884**	**0**	**540**	**31**	**509**	**540**	**815**	**Ton**

5.10. Fertilizer Material Annual Summary

Product Analysis	Plan Period	Product Needed Oct - Dec	Product Needed Jan - Sep	Total Product Needed	Units
42-0-0	Oct '11 - Sep '12	0	21,592	21,592	Lbs
0-0-60	Oct '11 - Sep '12	0	1,670	1,670	Lbs
42-0-0	Oct '12 - Sep '13	0	29,140	29,140	Lbs
0-0-60	Oct '12 - Sep '13	0	5,849	5,849	Lbs
42-0-0	Oct '13 - Sep '14	0	30,342	30,342	Lbs
0-0-60	Oct '13 - Sep '14	0	1,358	1,358	Lbs
42-0-0	Oct '14 - Sep '15	0	21,714	21,714	Lbs
0-0-60	Oct '14 - Sep '15	0	5,849	5,849	Lbs
42-0-0	Oct '15 - Sep '16	0	29,063	29,063	Lbs
0-0-60	Oct '15 - Sep '16	0	2,470	2,470	Lbs

5.11. Whole-farm Nutrient Balance (Manure-spreadable Area)

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Total Manure Nutrients on Hand at Start of Plan[1]	11,390	19,320	11,458
Total Manure Nutrients Collected[2]	299,676	508,300	301,444
Total Manure Nutrients Imported[3]	0	0	0
Total Manure Nutrients Exported[4]	229,476	389,229	230,830
Total Manure Nutrients on Hand at End of Plan[5]	55,230	93,679	55,556
Total Manure Nutrients Applied[6]	26,358	44,788	26,492
Available Manure Nutrients Applied[7]	16,438	44,788	26,492
Commercial Fertilizer Nutrients Applied[8]	53,122	0	9,916
Available Nutrients Applied[9]	69,560	44,788	36,408
Nutrient Utilization Potential[10]	90,936	37,217	82,625
Nutrient Balance of Spreadable Acres[11*]	-21,376	7,571	-46,217
Average Nutrient Balance per Spreadable Acre per Year[12*]	-33	12	-72

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate total manure nutrients present in storage(s) at the end of plan.
6. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
7. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 6) after accounting for state-specific nutrient losses due to rate, time and method of application.
8. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
9. Values are the sum of available manure nutrients applied (row 7) and commercial fertilizer nutrients applied (row 8).
10. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
11. Values indicate available nutrients applied (row 9) minus crop nutrient utilization potential (row 10). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
12. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 11) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates.

Whole-farm Nutrient Balance (Non-manure-spreadable Area)

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Commercial Fertilizer Nutrients Applied[1]	2,403	0	409
Nutrient Utilization Potential[2]	2,444	0	770
Nutrient Balance of Non-spreadable Acres[3*]	-41	0	-361
Average Nutrient Balance per Non-spreadable Acre per Year[4*]	-2	0	-16

1. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
2. Values indicate nutrient utilization potential of crops grown based on crop fertilizer recommendations.

3. Values indicate commercial fertilizer nutrients applied (row 1) minus crop nutrient utilization potential (row 2). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
4. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of non-spreadable acres (row 3) by number of non-spreadable acres in plan. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, multiple year applications may have been planned during the final plan year(s) and these nutrients will not be utilized by crops in the current plan. Negative values for P_2O_5 and K_2O indicate that applications to some fields may have been delayed to allow the producer to apply the nutrients in accordance with their fertilization schedule.

Section 6. Record Keeping

This section includes a list of key records that the operator should keep in order to document and verify implementation of the procedures in this CNMP. Records should be kept for a minimum of 5 years, or for the length of the contract, rotation or permit, whichever is longer, for each field where manure is applied.

These general records include but are not limited to:

- Soil test results
- Weather and soil conditions 24 hours prior to, during, and 24 hours after application of manure, chemicals and pesticides
- Documentation (can be verbal) of arrangements for land injection on land not owned by the grower
- Type, quantities, and sources of all nutrients generated and collected
- Type, quantities, and sources of all nutrients applied to each field
- Dates of manure applications
- Analysis of manure prior to application and test method used
- Analysis of the manure transferred, where applicable
- Dates manure was transferred, where applicable and to whom
- Amount of manure transferred, where applicable
- Inspection reports
- Preside Dress Soil Nitrate Testing (PSNT), where applicable
- Operation and Maintenance records of conservation practices and equipment
- Restricted pesticides used to meet label requirements
- Equipment Calibration records
- Crops planted, tillage methods, and dates planted
- Crop harvest dates and yields
- Conservation practices and management activities and implemented
- Adjustments to the nutrient management plan based on records and changes in farming operations as appropriate.
- Changes to the NMP
- Annual visual inspection of retention structure (the pits), animal holding areas, if applicable and land application areas.
- Records of mortalities and how managed

Section 7. Actual Test Results

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

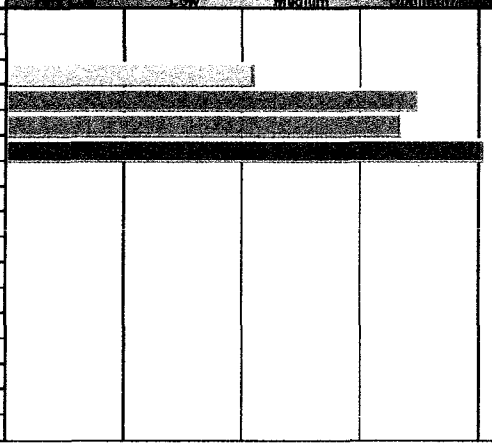
SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No: 01560
Mr. John Donaldson		Date Printed: 05/26/2011
107 Donaldson Ave		Date Received : 05/25/2011
Celina TN 38551		PO:

Lab Number : 18276 **Field Id :** **Sample Id :** 1

Test	Method	Results
Soil pH	1:1	7.4
Buffer pH	BPH	7.88
Phosphorus (P)	M3	34 LB/ACRE
Potassium (K)	M3	286 LB/ACRE
Calcium (Ca)	M3	2242 LB/ACRE
Magnesium (Mg)	M3	360 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	0.9 % ENR 62
Nitrate Nitrogen		

SOIL TEST RATINGS



Calculated Cation Exchange Capacity

7.5 meq/100g

Calculated Cation Saturation

%K	4.9
%Ca	74.7
%Mg	20.0
%H	0.0
Hmeq	0.0

K : Mg Ratio

0.24

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by A&L Analytical Laboratories, Inc.

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2449
A Laboratory Management Partner

SOIL ANALYSIS

Client :	Grower :	
Mr. John Donaldson Mr. John Donaldson 107 Donaldson Ave Celina TN 38551	Jack Renner	Report No. 11-145-0504 Cust No. 01560 Date Printed: 05/26/2011 Date Received : 05/25/2011 PO:

Lab Number : 18278 **Field Id :** **Sample Id :** 3

Test	Method	Results
Soil pH	1:1	6.5
Buffer pH	BPH	7.85
Phosphorus (P)	M3	740 LB/ACRE
Potassium (K)	M3	614 LB/ACRE
Calcium (Ca)	M3	3114 LB/ACRE
Magnesium (Mg)	M3	380 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	2.7 % ENR 98
Nitrate Nitrogen		

SOIL TEST RATINGS

Low Medium Optimum

Calculated Cation Exchange Capacity	
11.4 meq/100g	
Calculated Cation Saturation	
%K	6.9
%Ca	68.3
%Mg	13.9
%H	10.5
Hmeq	1.2
K : Mg Ratio	
0.50	

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments :

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Division Of Water Pollution Control

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc

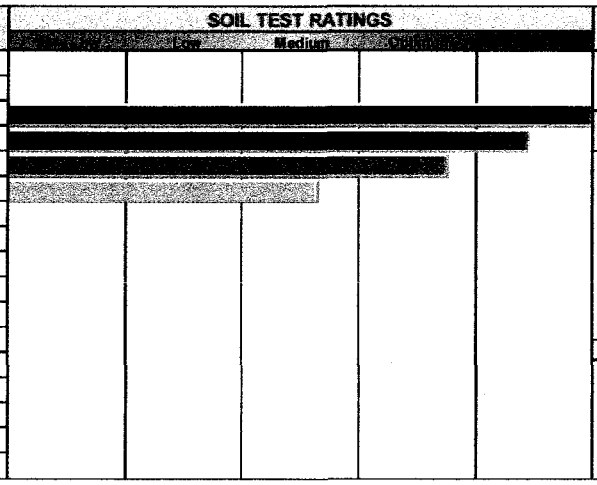
ETC Environmental Testing & Consulting, Inc.
2790 Walnut Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No: 01560
Mr. John Donaldson		Date Printed: 05/26/2011
107 Donaldson Ave		Date Received : 05/25/2011
Celina TN 38551		PO:

Lab Number : 18277 **Field Id :** **Sample Id :** 2

Test	Method	Results
Soil pH	1:1	7.0
Buffer pH	BPH	7.90
Phosphorus (P)	M3	334 LB/ACRE
Potassium (K)	M3	484 LB/ACRE
Calcium (Ca)	M3	2416 LB/ACRE
Magnesium (Mg)	M3	242 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	1.5 % ENR 74
Nitrate Nitrogen		



Calculated Cation Exchange Capacity: 7.7 meq/100g

Calculated Cation Saturation

%K	8.1
%Ca	78.4
%Mg	13.1
%H	0.0
Hmeq	0.0

K : Mg Ratio: 0.62

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments :

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc

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2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No 01560
Mr. John Donaldson		Date Printed 05/26/2011
107 Donaldson Ave		Date Received : 05/25/2011
Celina TN 38551		PO:

Lab Number : 18279 **Field Id :** **Sample Id :** 4

Test	Method	Results
Soil pH	1:1	6.4
Buffer pH	BPH	7.88
Phosphorus (P)	M3	430 LB/ACRE
Potassium (K)	M3	560 LB/ACRE
Calcium (Ca)	M3	2360 LB/ACRE
Magnesium (Mg)	M3	350 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	1.9 % ENR 82
Nitrate Nitrogen		

SOIL TEST RATINGS — Low / Medium / High

Calculated Cation Exchange Capacity	
9.0 meq/100g	
Calculated Cation Saturation	
%K	8.0
%Ca	65.6
%Mg	16.2
%H	10.7
Hmeq	1.0
K : Mg Ratio	
0.49	

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
Crop :								Rec Units:		

Comments

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BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories Inc

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2443
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	
Mr. John Donaldson Mr. John Donaldson 107 Donaldson Ave Celina TN 38551	Jack Renner	Report No: 11-145-0504 Cust No: 01560 Date Printed: 05/26/2011 Date Received : 05/25/2011 PO:

Lab Number : 18281 **Field Id :** **Sample Id :** 5

Test	Method	Results
Soil pH	1:1	7.1
Buffer pH	BPH	7.97
Phosphorus (P)	M3	502 LB/ACRE
Potassium (K)	M3	810 LB/ACRE
Calcium (Ca)	M3	2802 LB/ACRE
Magnesium (Mg)	M3	500 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	3.3 % ENR 110
Nitrate Nitrogen		

SOIL TEST RATINGS

Low Medium Optimum

Calculated Cation Exchange Capacity

10.1 meq/100g

Calculated Cation Saturation

%K	10.3
%Ca	69.4
%Mg	20.6
%H	0.0
Hmeq	0.0

K : Mg Ratio

0.50

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
Crop :							Rec Units:			

Comments :

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc.

ETC Environmental Testing & Consulting, Inc.
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"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No: 01560
Mr. John Donaldson		Date Printed: 05/26/2011
107 Donaldson Ave		Date Received : 05/25/2011
Celina TN 38551		PO:

Lab Number : 18282 **Field Id :** **Sample Id :** 6

Test	Method	Results
Soil pH	1:1	7.0
Buffer pH	BPH	7.94
Phosphorus (P)	M3	522 LB/ACRE
Potassium (K)	M3	632 LB/ACRE
Calcium (Ca)	M3	2936 LB/ACRE
Magnesium (Mg)	M3	422 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	2.3 % ENR 90
Nitrate Nitrogen		

SOIL TEST RATINGS — Low | Medium

Calculated Cation Exchange Capacity: 9.9 meq/100g

Calculated Cation Saturation

%K	8.2
%Ca	74.1
%Mg	17.8
%H	0.0
Hmeq	0.0

K : Mg Ratio: 0.46

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc.

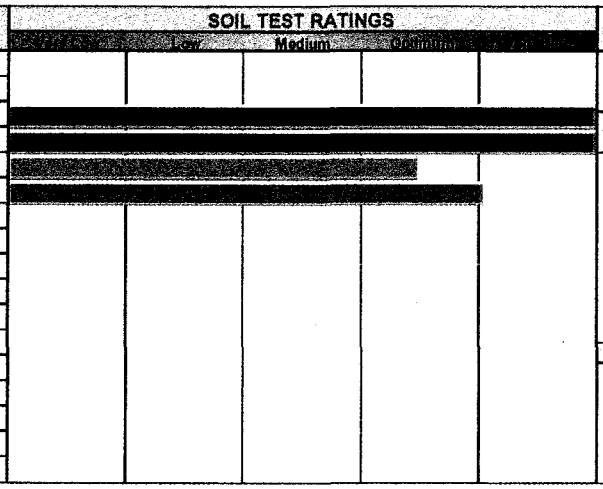
ETC Environmental Testing & Consulting, Inc.
2793 Wilber Road Memphis, Tennessee 38135 (901) 213-2400 Fax (901) 213-2443
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No: 01560
Mr. John Donaldson		Date Printed: 05/26/2011
107 Donaldson Ave		Date Received : 05/25/2011
Celina TN 38551		PO:

Lab Number : 18283 **Field Id :** **Sample Id :** 7

Test	Method	Results
Soil pH	1:1	7.3
Buffer pH	BPH	8.01
Phosphorus (P)	M3	614 LB/ACRE
Potassium (K)	M3	820 LB/ACRE
Calcium (Ca)	M3	4128 LB/ACRE
Magnesium (Mg)	M3	510 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	2.8 % ENR 100
Nitrate Nitrogen		



Calculated Cation Exchange Capacity

13.5 meq/100g

Calculated Cation Saturation

%K	7.8
%Ca	76.4
%Mg	15.7
%H	0.0
Hmeq	0.0

K : Mg Ratio

0.49

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
Crop :							Rec Units:			

Comments :

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	
Mr. John Donaldson Mr. John Donaldson 107 Donaldson Ave Celina TN 38551	Jack Renner	Report No: 11-145-0504 Cust No: 01560 Date Printed: 05/26/2011 Date Received: 05/25/2011 PO:

Lab Number : 18284 **Field Id :** **Sample Id :** 8

Test	Method	Results
Soil pH	1:1	6.8
Buffer pH	BPH	7.94
Phosphorus (P)	M3	544 LB/ACRE
Potassium (K)	M3	338 LB/ACRE
Calcium (Ca)	M3	2940 LB/ACRE
Magnesium (Mg)	M3	410 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	2.6 % ENR 96
Nitrate Nitrogen		

SOIL TEST RATINGS — Low / Medium / Optimum

Calculated Cation Exchange Capacity	
10.0 meq/100g	
Calculated Cation Saturation	
%K	4.3
%Ca	73.5
%Mg	17.1
%H	4.8
Hmeq	0.5
K : Mg Ratio	
0.25	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : **Rec Units:**

Comments :

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Division Of Water Pollution Control

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by A&L Analytical Laboratories Inc.

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SOIL ANALYSIS

Client :	Grower :	
Mr. John Donaldson Mr. John Donaldson 107 Donaldson Ave Celina TN 38551	Jack Renner	Report No: 11-145-0504 Cust No: 01560 Date Printed: 05/26/2011 Date Received: 05/25/2011 PO:

Lab Number : 18285 **Field Id :** **Sample Id :** 9

Test	Method	Results	SOIL TEST RATINGS (Low / Medium / Optimum)
Soil pH	1:1	6.5	
Buffer pH	BPH	7.94	
Phosphorus (P)	M3	534 LB/ACRE	
Potassium (K)	M3	618 LB/ACRE	
Calcium (Ca)	M3	2508 LB/ACRE	
Magnesium (Mg)	M3	482 LB/ACRE	
Sulfur (S)			
Boron (B)			
Copper (Cu)			
Iron (Fe)			
Manganese (Mn)			
Zinc (Zn)			
Sodium (Na)			
Soluble Salts			
Organic Matter	WB	2.8 % ENR 100	
Nitrate Nitrogen			

Calculated Cation Exchange Capacity

9.6 meq/100g

Calculated Cation Saturation

%K	8.3
%Ca	65.3
%Mg	20.9
%H	5.0
Hmeq	0.5

K : Mg Ratio

0.39

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
Crop :							Rec Units:			

Comments :

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc.

ETC Environmental Testing & Consulting, Inc.
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"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	
Mr. John Donaldson Mr. John Donaldson 107 Donaldson Ave Celina TN 38551	Jack Renner	Report No: 11-145-0504 Cust No: 01560 Date Printed: 05/26/2011 Date Received : 05/25/2011 PO:

Lab Number : 18286 **Field Id :** **Sample Id :** 10

Test	Method	Results
Soil pH	1:1	7.3
Buffer pH	BPH	7.96
Phosphorus (P)	M3	124 LB/ACRE
Potassium (K)	M3	140 LB/ACRE
Calcium (Ca)	M3	2754 LB/ACRE
Magnesium (Mg)	M3	446 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	1.9 % ENR 82
Nitrate Nitrogen		

SOIL TEST RATINGS — Low / Medium / Optimum

Calculated Cation Exchange Capacity	
8.9 meq/100g	
Calculated Cation Saturation	
%K	2.0
%Ca	77.4
%Mg	20.9
%H	0.0
Hmeq	0.0
K : Mg Ratio	
0.10	

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments :

Received
JUN 3 2011
Division Of Water
Pollution Control

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by A&L Analytical Laboratories Inc.

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2449
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No: 01560
Mr. John Donaldson		Date Printed: 05/26/2011
107 Donaldson Ave		Date Received : 05/25/2011
Celina TN 38551		PO:

Lab Number : 18287 **Field Id :** **Sample Id :** 11

Test	Method	Results
Soil pH	1:1	7.2
Buffer pH	BPH	7.99
Phosphorus (P)	M3	80 LB/ACRE
Potassium (K)	M3	54 LB/ACRE
Calcium (Ca)	M3	2624 LB/ACRE
Magnesium (Mg)	M3	380 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	2.1 % ENR 86
Nitrate Nitrogen		

SOIL TEST RATINGS — Low / Medium / Optimum

Calculated Cation Exchange Capacity
8.2 meq/100g

Calculated Cation Saturation

%K	0.8
%Ca	80.0
%Mg	19.3
%H	0.0
Hmeq	0.0

K : Mg Ratio
0.04

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments :

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc.

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2443
A Laboratory Management Partner

SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No: 01560
Mr. John Donaldson		Date Printed: 05/26/2011
107 Donaldson Ave		Date Received: 05/25/2011
Celina TN 38551		PO

Lab Number : 18288 **Field Id :** **Sample Id :** 12

Test	Method	Results
Soil pH	1:1	6.8
Buffer pH	BPH	7.94
Phosphorus (P)	M3	36 LB/ACRE
Potassium (K)	M3	32 LB/ACRE
Calcium (Ca)	M3	1788 LB/ACRE
Magnesium (Mg)	M3	228 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	1.5 % ENR 74
Nitrate Nitrogen		

SOIL TEST RATINGS

Low Medium

Calculated Cation Exchange Capacity	
5.9 meq/100g	
Calculated Cation Saturation	
%K	0.7
%Ca	75.8
%Mg	16.1
%H	8.1
Hmeq	0.5
K : Mg Ratio	
0.04	

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments :

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by A&L Analytical Laboratories Inc

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

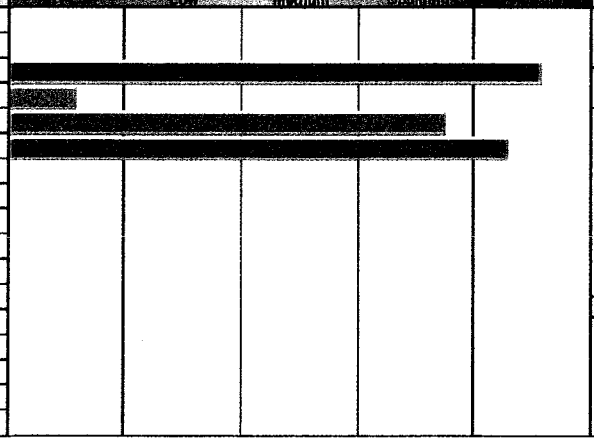
SOIL ANALYSIS

Client :	Grower :	
Mr. John Donaldson Mr. John Donaldson 107 Donaldson Ave Celina TN 38551	Jack Renner	Report No: 11-145-0504 Cust No: 01560 Date Printed: 05/26/2011 Date Received : 05/25/2011 PO:

Lab Number : 18289 **Field Id :** **Sample Id :** 13

Test	Method	Results
Soil pH	1:1	7.2
Buffer pH	BPH	8.05
Phosphorus (P)	M3	162 LB/ACRE
Potassium (K)	M3	52 LB/ACRE
Calcium (Ca)	M3	3042 LB/ACRE
Magnesium (Mg)	M3	456 LB/ACRE
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	WB	2.0 % ENR 84
Nitrate Nitrogen		

SOIL TEST RATINGS



Calculated Cation Exchange Capacity

9.6 meq/100g

Calculated Cation Saturation

%K	0.7
%Ca	79.2
%Mg	19.8
%H	0.0
Hmeq	0.0

K : Mg Ratio

0.04

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc.

ETC Environmental Testing & Consulting, Inc.
2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	
Mr. John Donaldson Mr. John Donaldson 107 Donaldson Ave Celina TN 38551	Jack Renner	Report No: 11-145-0504 Cust No: 01560 Date Printed: 05/26/2011 Date Received: 05/25/2011 PO:

Lab Number : 18290 **Field Id :** **Sample Id :** 14

Test	Method	Results	SOIL TEST RATINGS (Low / Medium / High)
Soil pH	1:1	7.1	
Buffer pH	BPH	7.88	
Phosphorus (P)	M3	76 LB/ACRE	
Potassium (K)	M3	58 LB/ACRE	
Calcium (Ca)	M3	1870 LB/ACRE	
Magnesium (Mg)	M3	310 LB/ACRE	
Sulfur (S)			
Boron (B)			
Copper (Cu)			
Iron (Fe)			
Manganese (Mn)			
Zinc (Zn)			
Sodium (Na)			
Soluble Salts			
Organic Matter	WB	1.8 % ENR 80	
Nitrate Nitrogen			

Calculated Cation Exchange Capacity	
6.0 meq/100g	
Calculated Cation Saturation	
%K	1.2
%Ca	77.9
%Mg	21.5
%H	0.0
Hmeq	0.0
K : Mg Ratio	
0.06	

SOIL FERTILITY GUIDELINES

Crop : **Rec Units:**

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
Crop :								**Rec Units:**		

Comments :

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc

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2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
"A Laboratory Management Partner"

SOIL ANALYSIS

Client :	Grower :	Report No: 11-145-0504
Mr. John Donaldson	Jack Renner	Cust No: 01560
Mr. John Donaldson		Date Printed: 05/26/2011
107 Donaldson Ave		Date Received : 05/25/2011
Celina TN 38551		PO:

Lab Number : 18291 **Field Id :** **Sample Id :** 15

Test	Method	Results	SOIL TEST RATINGS (Low / Medium / Optimum)
Soil pH	1:1	6.5	
Buffer pH	BPH	7.90	
Phosphorus (P)	M3	102 LB/ACRE	
Potassium (K)	M3	366 LB/ACRE	
Calcium (Ca)	M3	1816 LB/ACRE	
Magnesium (Mg)	M3	412 LB/ACRE	
Sulfur (S)			
Boron (B)			
Copper (Cu)			
Iron (Fe)			
Manganese (Mn)			
Zinc (Zn)			
Sodium (Na)			
Soluble Salts			
Organic Matter	WB	1.8 % ENR 80	
Nitrate Nitrogen			

Calculated Cation Exchange Capacity

7.5 meq/100g

Calculated Cation Saturation

%K	6.3
%Ca	60.5
%Mg	22.9
%H	10.7
Hmeq	0.8

K : Mg Ratio

0.27

SOIL FERTILITY GUIDELINES

Crop : Rec Units:

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe

Crop : Rec Units:

Comments

BPH - Lime Index M3 - Mehlich 3 WB - Walkley Black Color 1:1 - Water pH

Analysis prepared by: A&L Analytical Laboratories, Inc.

A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440
www.allabs.com

LAND APPLICATION ANALYSIS

Client
Mr. John Donaldson

107 Donaldson Ave

Celina, TN 38551

Grower
Jack Renner
2905 Fish Hatchery Rd.
Mohawk, TN 37810

PO

Report No: 11-145-0215
Cust No: 01560
Date Printed: 05/31/2011
Date Recd: 5/25/2011

Page: 1 of 1

Lab Number: 85946 Sample Id: Litter

Test	Analysis		Pounds Per Ton	
	As Received	Dry Basis	As Received	Dry Basis
Nitrogen, N %	3.39	3.91	67.8	78.2
Ammoniacal-N %	0.49	0.56	9.79	11.3
Phosphorus, P %	2.49	2.87	115 P_2O_5	132
Potassium, K %	2.84	3.27	68.2 K_2O	78.6
Sulfur, S				
Magnesium, Mg				
Calcium, Ca				
Sodium, Na				
Iron, Fe				
Aluminum, Al Manganese, Mn				
Copper, Cu				
Zinc, Zn				
Boron, B				

Test	Result
Moisture %	13.3
Solid %	86.7

Additional Information	Result
Type	Dry Basis

Additional Tests	Result
Ammoniacal-N, %	0.49

Comments:

RMMA Recommended Methods of Manure Analysis, Peters et al. 2002. In Press
SW USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed. Current Revision

Oscar Ruiz

OCT 04 2011

Pollution Control

Section 8. Closure Plan

John Qualls will remove all waste from the dry stack and poultry houses upon closure of this facility. Manure will be applied based on the current nutrient management plan upon that future date.

Outline for Closure Plan

Purpose
Provide a brief description to the owner(s)/operator(s), of where the plan is to be submitted, and the standards/criteria by which the plan will be prepared to meet, if, and when, the site is closed.

Location
Provide site map, direction to the site, and an indication of the watershed where the runoff flows.

Description of the Operation
Describe the general soils at the site(s)
Determine the total volume of manure to be removed, and obtain a current manure test results.

Closure Description
Describe in detail how to close the facility all manure that will be land applied as instructed that a revised Nutrient Management Plan be prepared.
In the event that Jack Renner broiler production at this location ceases, the following will be done within 360 days:

- Any litter currently in storage at the time of closure will be removed and exported according to my Nutrient Management Plan.
- All litter in houses will be removed and exported according to my Nutrient Management Plan.
- The most current litter analysis will be provided to anyone removing litter from the farm.
- Any dead birds in the houses at the time of closure will be composted.

Section 9. References

10.1. Publications

Crop Fertilizer Recommendations

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Aug 2008
http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Feb 2009
http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

Manure Application Setback Features/Distances

TN DEQ Rule 1200-4-5-.14(17)(d)
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

TN DEQ Rule 1200-4-5-.14(17)(d)
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

Manure Nutrient Availability

"Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94
http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm

Phosphorus Assessment

"Tennessee Phosphorus Index," Tennessee NRCS, Nov. 2001

Practice Standards

Tennessee NRCS Nutrient Management Standard (590), Jan. 2003
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

10.2. Software and Data Sources

MMP Version	MMP 0.3.0.2
MMP Plan File	TN_Renner.mmp 9/29/2011 10:50:33 PM
MMP Initialization File for Tennessee	6/4/2009
MMP Soils File for Tennessee	9/8/2010
Phosphorus Assessment Tool	2009.02.20
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	Version: 1.32.3.0 Build: Dec 17 2007 Science: 20061020
RUSLE2 Database	Renner_RUSLE2mosesdb.gdb

9. Operation and Maintenance

General

Operation and maintenance of structural, non-structural, and land treatment measures requires effort and expenditures throughout the life of the practice(s) to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice(s) if one or more components fail. Listed below is the operation and maintenance plan for the structural, non-structural, and land treatment measures for this operation.

Concrete in the buildings should be checked for signs of cracking. If cracks are discovered they must be repaired immediately. Hairline cracks are expected and should pose no problem.

Waste Storage Facility - Manure Pack Storage
Waste Storage Facility –Roofed Storage Facilities
Trusses/roof supports shall be examined during/after snowfall and high wind events. Excessive snow loads may require removal. Damage from high winds may cause structural damage to the truss/roof supports. Roof materials shall be replaced as wear/leakage occurs. Metal roofing may require periodic painting. Gutters and Downspouts shall be maintained.

Pasture Management

The pastures for the dry cows shall be managed for optimal growth of vegetation. The pastures are divided into sub-pastures as needed. The pastures will be managed in such a manner that will result in a well maintained stand of grass. Grazing of pastures should follow the recommendations provided by NRCS.

The actual time that cows are on pastures shall be adjusted based on production of forage and amount of nutrients applied. It is suggested that a ledger be kept to record the number of cows and time kept on individual pasture areas.

The pastures must be managed to prevent denuded areas from developing. This will be accomplished using gates and fencing to confine cows to specific areas. Portable feeders, portable shades, electric fence and portable water troughs are ways to help distribute the cows, and ultimately, evenly spreading the nutrients over the pastures. Electric twine can be used to subdivide the pastures and restrict grazing to the desired areas. This will help prevent the formation of denuded areas. A daily use record should be maintained in order to ensure uniform distribution of the nutrients. If a denuded area starts to develop, immediate corrective measures must be taken. Corrective actions may include, but not be limited to, temporarily fencing off the area, reseeding the area,

and relocating the cause of the denuded area if applicable. Any buildup of manure (i.e., around gates and feeders) should be removed, analyzed for N, P and K then spread according to the nutrient management plan.

Supplemental fertilizer may be needed to maintain good vegetation conditions in the pastures. A soil test will determine which nutrients are lacking and the amount to apply. Only apply the amount of nutrients recommended by the soil test and in accordance with the nutrient management plan.

Animal Trails and Walkways

The walkways should be cleaned frequently to prevent a buildup of manure and reshaped as necessary to facilitate the removal of surface runoff. Fences and gates shall be used to control the access and movement of cattle using the animal trails and walkways and to prevent the creation of ruts in the trails and walkways. Cows will be moved non-stop between the barn and the pastures and not allowed to loaf or rest on the walkway.

The solids removed from any trails or walkways shall be analyzed for N, P_2O_5, and K_2O as they are removed and before they are spread.

Manure Spreader

Collecting a sample from the manure spreader is one of the preferred methods of collecting a solid manure sample because it represents what is being applied to the field. In addition, by the time manures have been scraped, collected, and loaded into a manure spreader, reasonable mixing has been performed. However, you should still collect at least 5 sub-samples following the collection procedures for the solids separator.

Nutrient Management

When applying waste or commercial fertilizer, calibrate application equipment to ensure that applied rates at recommended rates. It is important to avoid unnecessary exposure to chemical fertilizers and organic wastes. Protective clothing, respirator, gloves and footwear shall be worn when appropriate. When cleaning equipment after nutrient application, residual fertilizers or wastes shall be removed and saved in an appropriate manner.

- Keep records to document implementation activities. (Refer to PQC for guidance for the kind of records that should be kept).
- Calibrate manure application equipment according to procedures outlined in this section.
- *Dispose/recycle nutrient containers according to state and local guidelines or regulations.*
- Apply nutrients according to the procedures outlined in Section 6.
- Delay application of manure if precipitation capable of producing runoff is anticipated within 24 hours of the application event.
- Monitor soil test phosphorus levels and adjust nutrient application rates accordingly.
- Do not apply manure and wastewater on saturated, frozen and/or frequently flooded soils.
- Adhere to no-application setbacks as outlined on the conservation plan maps in Section 4.

Pesticide Management

The owner/operator is responsible for the proper application and storage of pesticides including calibration and maintenance of all equipment used in application of pesticides. No pesticides are stored on-site. Chemical fertilizers are purchased on an as needed basis. In addition, moveable mixing station is used and long time use of a specific mixing site is avoided therefore minimizing ground contamination. The following should be addressed, according to pesticide labels, in order to minimize negative impacts to the environment:

- Be trained and licensed to apply restricted pesticides.
- Dispose of leftover materials and containers according to label requirements.
- Read and follow all label directions and Material Safety Data Sheets that come with the pesticides.
- Avoid mixing pesticides and loading or rinsing sprayers next to wells, streams, sinkholes, drainage ditches, etc. Install anti-siphon devices on all hoses used to fill spray tanks.
- Avoid exposure to pesticides. Wear appropriate clothing, gloves, respirator, and footwear as specified on the product label. Wash affected area as soon as possible after possible exposure and prior to dinning or smoking.
- Check product label for reentry time. Follow restricted entry intervals.
- Triple –rinse empty containers is considered as a part of an integrated pest management system. Provide areas for emergency washing for those who might accidentally come in

contact with chemicals.

- Use field scouting to determine when treatment threshold has been reached. Treatment thresholds for specific pests and crops are often available from the local Cooperative Extension Service office.
- Alternate pesticides of dissimilar mode of action or chemistry to reduce-target species resistance.
- Select methods of application that will result in the least potential for runoff and leaching.

Waste Utilization
Follow Nutrient Management Plan included in this document for the proper manure application rates, timing, and methods of application to provide nutrients to support crop production and to minimize the transport of nutrients to ground and surface water.

Commercial Fertilizer Application Equipment Calibration

The nitrogen applicator and the commercial broadcast spreaders will be set per the manufacturer's recommendations, then filled with a known amount and checked over a known acreage. Adjustments will be made to achieve the planned rates.

Animal Mortality Management
Inspect the facility to note any maintenance needs or indicators of operation problems.

Composting
The composted material will be utilized per the enclosed "Nutrient Management Plan.

Filter Strip
Establish a strip of perennial vegetation for trapping sediment and other pollutants from runoff or waste water.

Harvest the filter strip vegetation annually to encourage dense growth, maintain an upright growth habit and remove nutrients and other contaminants that are contained in the plant tissue.

Control undesired weed species, especially state-listed noxious weeds.

Inspect the filter strip after storm events and repair any gullies that have formed, remove unevenly deposited sediment accumulation that will disrupt sheet flow, and reseed disturbed areas.

Periodically re-grade the filter strip area when sediment deposition at the filter strip-field interface jeopardizes its function. Reestablish the filter strip vegetation in these re-graded areas, if needed.

Manure Spreader Calibration

There are several methods that can be used to calibrate the application rate of a manure spreader. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to ensure a more accurate calibration. Calibration should take place annually or when manure is being applied from different sources or consistency.

Before calibrating a manure spreader, the spreader settings should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating of application rates when overlapping, requires measuring the width of two spreads and dividing by two to get the effective spread width.

To calibrate the manure spreader use either of the following procedures.

Spreader Calibration - Method 1

Equipment: plastic sheet 6 x 6ft or 10 x 10ft, scale, bucket

1. Weigh sheet with bucket on the scale

2. Lay sheet in field in the path of manure spreader positioning it so the tractor will be at spreading speed before it reaches the sheet.

3. After spreading weigh sheet and manure in the bucket. Subtract weight of sheet plus bucket

4. Tons manure/acre = lb manure x 2 1.8, sheet size, sq ft

Spreader Calibration - Method 2

Equipment: yard stick, rope

1. Determine manure spreader capacity

2. Tie rope around tractor tire to determine distance traveled in one revolution

3. Spread manure load, counting wheel revolutions to determine the distance traveled

4. Measure width spreader is covering with manure, multiply by distance traveled